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Srovnání dopadu současné finanční krize na ekonomiku USA a Číny

Comparison of the Impact of Contemporary Financial Crisis on the Economy of the United States of America and China

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3. Impact of Financial Crisis on Macroeconomic Situation of the USA and China
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The declaration

"Herewith I declare that I elaborated the entire thesis, including all annexes, independently. "

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1 Introduction

The global financial crisis of 2007-2008 was one of the biggest financial crisis in recent years. In this thesis, we focus on this global financial crisis and comparison of its impact on two countries, U.S. and China.

The main objective of this thesis is to find similarities and differences between U.S and China during the financial crisis and compare impacts of financial crisis on macroeconomic situations and financial markets of U.S and China.

The thesis is divided into five chapters. The first chapter is the introduction which introduces the main goal of this thesis and research directions of this topic.

In the second chapter, we focus on characteristic of financial crisis. The present situation of financial crisis in worldwide and main reasons of financial crisis in general is introduced in this chapter.

In the third chapter, we focus on impact of financial crisis on macroeconomic situations of U.S. and China. The economic situation, basic indicators and solutions of both countries are compared.

The fourth chapter is focused on impact of financial crisis on financial markets of China and U.S. We mainly analyze the impact on stock markets and real estate markets of these two countries and relationship between stock markets of these two countries.

The fifth chapter is the conclusion. In this part we conclude the results of previous analysis and get the final conclusion of comparison of the impact of contemporary financial crisis on the economy of the U.S. and China.

2 Characteristic of Financial Crisis

In this chapter, we focus on characteristic of financial crisis. In order to analysis the global financial crisis, the present situation of financial crisis in worldwide and main causes of global financial crisis from 2007-2008 are as follows. Also we pay our attention on the basic economic indicators that help us to understand the situation around the world during the financial crisis.

2.1 Present situation of financial crisis in worldwide

Financial crisis are typically strong and bad economic phenomena affects the whole economic system in different kinds of way. Financial crisis happens when financial institutions or assets have loses of a large part of their value. It often appears in different kind of economic areas but always infect among the whole economic environment. Different types of crises were appeared in the past years, like banking crises, speculative bubbles and crashes or currency crises. (Kaufman, 2010)

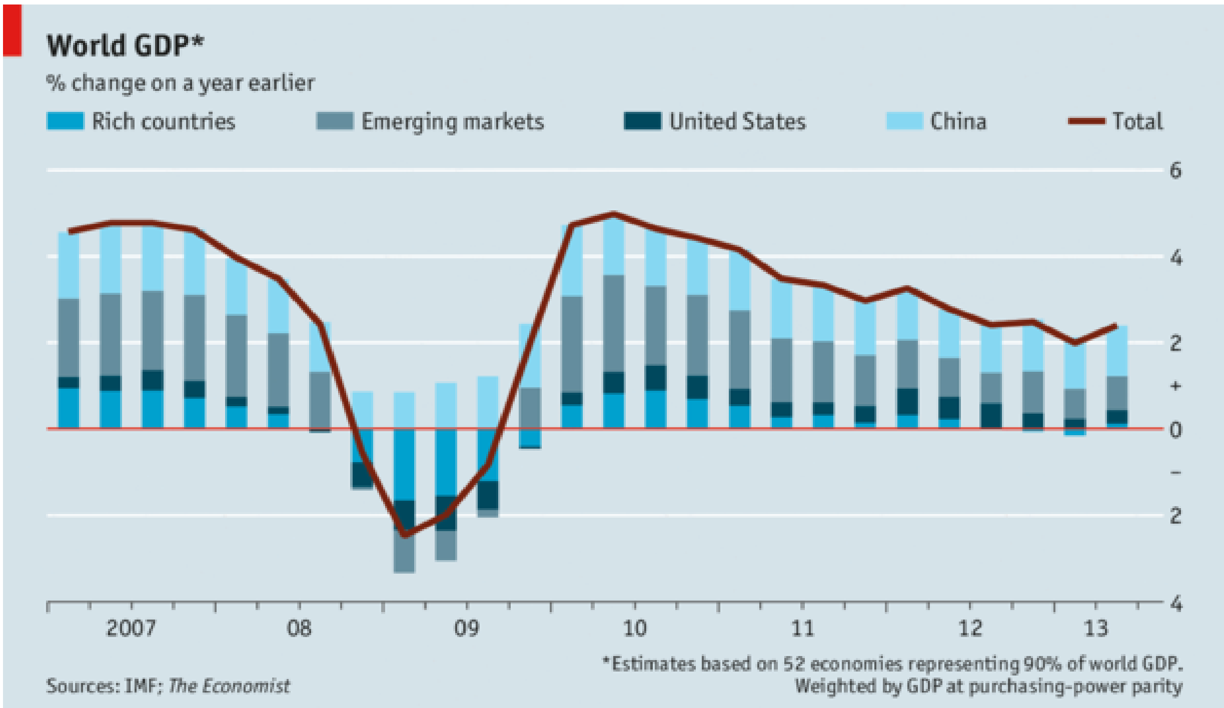
As a comparison of its frequency, the possibility doubled since 1973 compare to 1945-1971. The annual frequency of financial crisis was *6.5%* in 1945-1971 and *12%* since 1971.[1] And the scale and influence were growing stronger and stronger.

It mainly because the globalization of economic and economic entities were highly related with the technological advances. As side effects, financial crisis are becoming more frequent among these years.

In this project we focus on the impact of recent financial crisis in U.S. and China. First of all we can pay our attention on the macroeconomic environment in recent years to find out when the recent financial crisis is and what happened in the world. In order to find out the impact in world wild, we use world GDP to show the situation. From figure below we can find GDP among rich countries and emerging markets. This figure especially show the situation of United States of America and China to compare with the total GDP.

[1] "Financial crises: characteristics and crisis management", Seppo Honkapohja, June 4, 2009.

Figure 2.1 World GDP from 2007-2013



Sources: IMF; The economist

From the figure the trend is conspicuous, the downward trend from 2007 to 2008 shows the financial crisis was having bad impact on the world economic. World GDP became negative during 2008 and recovery at the end of 2008.

In the middle of 2009 the world GDP finally became positive and backed to the same level of before. From the light blue and dark blue column we can see the GDP of China and U.S. during this period, the analysis of impact of these two countries can be shown in the following chapters.

2.2 Main causes of financial crisis in general

Before analysis the main causes of financial crisis in 2008, in order to compare with general financial crisis the causes of financial crisis in general can be analyze.

2.2.1 Fragility of financial systems

One of the main cause of financial crisis is the *fragility of financial systems*.[2] The fragility of financial systems always cause unexpected impact of economic entities. There are two reasons of fragility of financial systems, asset-liability mismatch and strategic complementarities in financial market.

[2] "Another Kind of Financial Fragility", Krugman Paul, New York Times. February 4 2011.

For asset-liability mismatch, intermediation of funds always create asset-liability mismatch. This is a situation that the risks associated with an institution's assets and debts are not aligned in appropriately way.

This kind of situation often appears in banks, as an example, it's possible for deposit accounts that withdrawn at any time, but for bank this part of money was already lend to customers as loans. So the short term liability is not appropriately equal to long term assets. When the depositors panic and try to withdraw their money quicker than the bank can get them back from the loans, the runs occur happened. Diamond-Dybvig model is a model shows the bank runs and related financial crisis. This model shows how bank's mix of illiquid assets and liquid liabilities.

Another reason is strategic complementarities in financial market. J.M. Keynes once said financial market are *"beauty contests"*[3]. It's a very suitable metaphor to show the psychology of people who is investing in the financial market. They believe that successful investment require them to guess what other investor's strategy is and try to coordinate the strategy of themselves. Investor's choices are strategic complements. When they get information from other investors, they can be incentives to coordinate decisions and get strategic complementarity. But the information always asymmetry, because of opaque disclosures or lack of disclosure and fake information, the decision that was coordinate can be exaggerated and not much efficiency.

Also the decisions can be incentive because others behaviors, especially financial giants and famous economist. For example that George Soros buy Thai baht and suddenly sold them to arbitrage, people who followed Soros behavior and still holding Thai baht were facing a great amount of losses. It was also the main reason of financial crisis in 1997.

These two reasons show the fragility of financial systems and become the main cause of financial crisis.

2.2.2 Amplifying factors of the global financial crisis

Amplifying factors of financial crisis is contributes the bad situation. First is the imperfect knowledge and limitations of people's reasoning. Because when the economic is growing especially big financial and technical innovations, people always lead to overestimated assets values.

[3] "The General Theory of Employment, Interest and Money". Keynes, John Maynard, New York: Harcourt Brace and Co. September 7, 1936.

There can be also some psychology factors of humans. When people is learning new technologies and familiar with new financial instruments, they may be overconfidence and exaggerate advantages but ignore insufficient parts. Also people are easily to become herding, following mainstream views or others opinions. These may cause the overestimated assets values.

Another reason is high leverage. Imagine, when people only invest what they owns, the worst situation is lose what they owned. But if additional funds are borrowed from other people or firms and invest more, in one hand the potential gains can be increased, in the other hand also the potential losses can become bigger. So if high leverage appears, investor's potential losses can be huge and the mistake in investing can be a big crash to whole economy. In addition, when the bankruptcy appears, the bankruptcy risk can be arises and can spread financial problems to other institutions. In this situation the systemic risk can be contagion and increased.

Consider in the business cycle, the crash in recession part can be real shocks sometimes. The bank will reduce assets in these shocks. If shocks are big enough for customers to anticipate weakness of bank and some kind of withdraws and runs occur happens.

For regulation, regulatory failures can be also important part of causes of financial crisis, especially in recent years. Government usually attempted to eliminate financial crisis by regulating the financial sector. The main goal of regulation is transparency, especially in decision making institutions. Another goal of regulation is to ensure the institutions have enough assets to meet their obligations. (Wilfried, 2013)

So if the regulation fail, the regulatory failures can become the main reason of financial crisis. The insufficient regulation resulting in financial crisis. Then the government try to change the regulation in order to avoid repeat. For example, the former president of international monetary fund blamed the financial crisis of 2008 on the cause of *regulatory failure*.[4]

In contrast with regulatory failure, excessive regulation can also be a possible cause of financial crisis. For example, banks needs to increase their capital when risk is rising according to Basel II's requirement. It may cause the decrease of loans when capital is scarce and aggravating financial crisis.

Moral hazard can also become a role of collapse of some financial institutions, especially for fraud. There were a great amount of examples that shows fraud caused large losses at

[4] "Lowenstein-Banking Fix Made Easy with Six Simple Steps-Bloomberg", November 2009

financial institutions. For the recent financial crisis in 2008, fraud in mortgage financing has also become one possible cause. Many people also believe that companies failed in recent financial crisis because the managers of companies failed to carry out their fiduciary duties.

2.2.3 Contagion of the global financial crisis

Because of globalization, economic institutions are highly relate to each other. In this case when the financial crisis happened, it nearly like virus who contagion among people. For financial crisis, contagion is more accurate to describe the situation.

In the financial crisis, the affect may spread from one institution to another; one bank to another; one country to another, even caused sovereign defaults of stock market crashes. Especially when the failure of one typical financial institution and influence the stability of many other institutions.

As an example of contagion, financial crisis in 1997 that started at Thai contagion to other countries, especially Asia countries.[5]

2.3 Main cause of financial crisis in 2007-2008

Financial crisis in 2007-2008 is the biggest financial crisis in recent years, it also known as the global financial crisis. Many economist believes that it was the biggest and worst financial crisis since 1930 (Compare to *Great Depression*).[6]

In this period of time, Global economic was facing great losses and a great amount of countries owned negative GDP growth rate from 2008-20010, especially countries high related to U.S. economic.

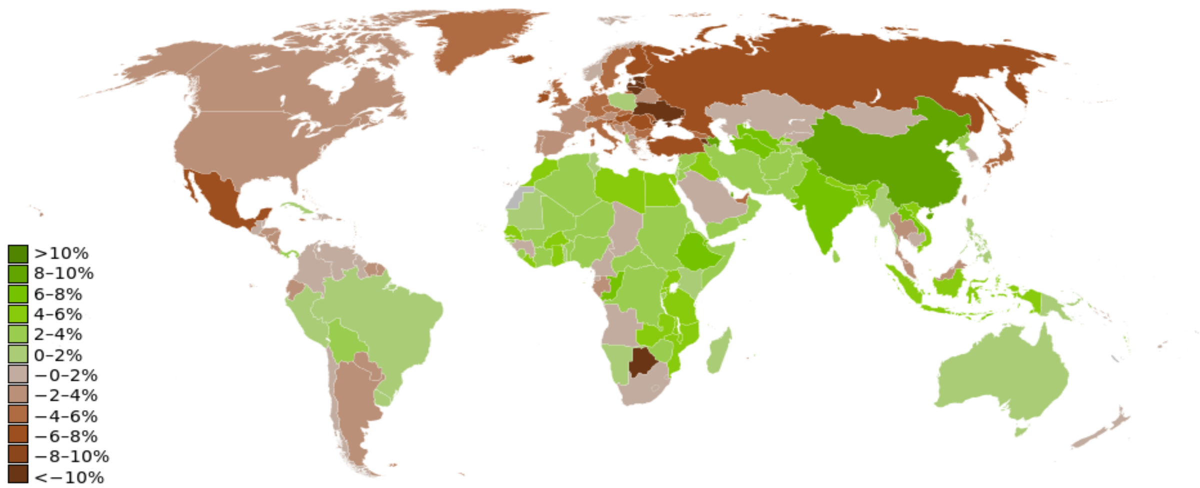
We can have a look at real GDP growth rate in 2009 and find out the economic situations of those countries which was facing this economic disaster. U.S., Russia and European countries had negative real GDP growth rate but real GDP growth rate in China, Australia and Africa were still positive

From the figure below we can see the real GDP growth rate in 2009.

5 "“FRBSF Economic Letter: What Caused East Asia's Financial Crisis?” August 7 1998.

6 “Two top economists agree 2009 worst financial crisis since great depression; risks increase if right steps are not taken.” Reuters, September 30, 2009.

Figure 2.2 Real GDP growth rate in 2009



Source: World map showing GDP real growth rates for 2009. CIA world fact book estimates

In the previous figure we can see countries with brown color is in the recession. We can see Asia; Africa; Australia and part of South America was in positive GDP and China was the best among the world. Other countries especially Russia was facing a big amount of negative GDP real growth rate. Then we moved on the cause of financial crisis during 2007-2008

2.3.1 Subprime lending

This was the main cause of financial crisis during 2007-2008, this crisis also called subprime mortgage crisis. In order to compete revenues and market share, the mortgage lenders wanted to increase its issued loans. But the creditworthy borrowers was very few and limited, so the mortgage lenders *relaxed underwriting standards*[7], they allowed more people with worse credit situation to get loans from them. Also the risk is quite high compare to creditworthy borrowers.

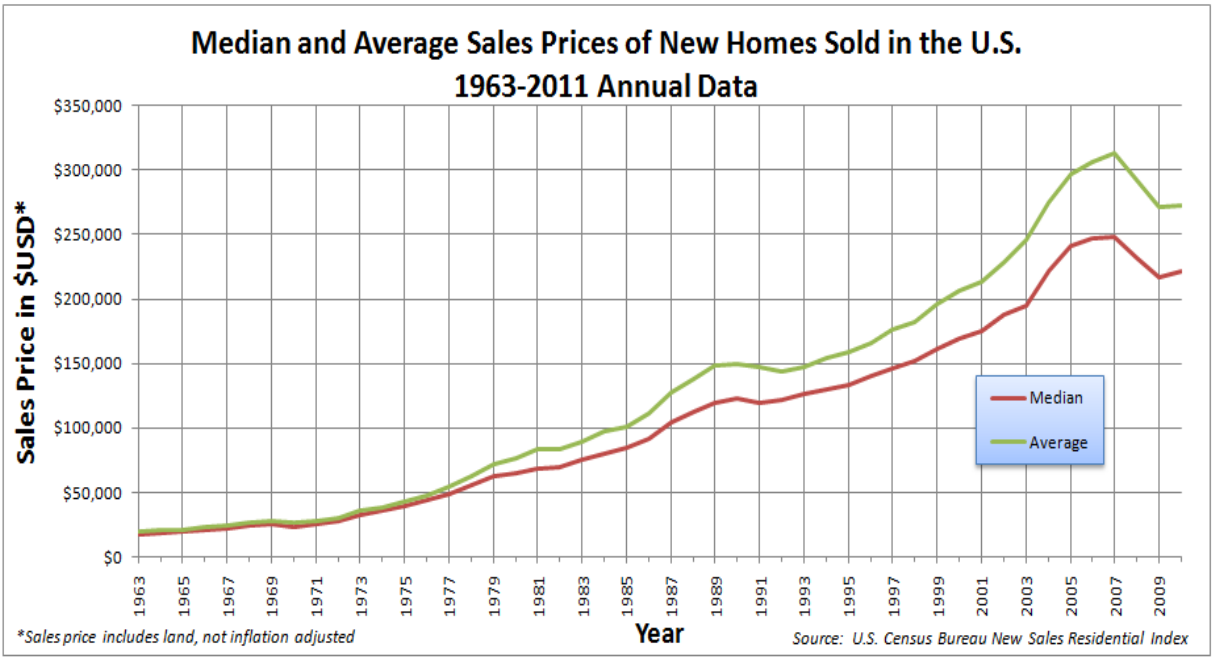
From the history we can see this problem wasn't suddenly happened. Since 2004, as market power shifted from securitizes to originators and high compete between firms, the mortgage standards declined and risk loans became much more than before. From 2004-2006, the subprime lending of U.S. expanded dramatically. Because of the easy credit conditions, the pressures of competitive increased the amount of subprime lending during this period.

2.3.2 Housing bubbles

Before we talk about housing bubbles, we can have a look at median and average sales price of new homes sold in USA from 1963-2011. From the figure we can see how the price was increasing from these 50 years. Especially the change during 2007-2009.

[7] "Balancing Risk and Access", RESEARCH REPORT. January 2012

Figure 2.3 Median and average sales price of New home in U.S.



Source: "Median and Average Sales Prices of New Homes Sold in United States". Census.gov.2012.

From the figure we can see the price was increasing during these years. Even though the figure conclude inflation factors but since 1991 the trend became sharp and reach the highest point at 2007. Then the bubble crashed since 2007.

By September 2008, the average U.S. housing prices had declined above 20% from their peak in mid of 2006. When the prices declined, borrowers with adjustable-rate mortgages were not able to refinance to avoid the higher payments because of rising interest rates. So they began to default.

2.3.3 Easy credit conditions

Because of low interest rate, the borrowing was encouraged and it's easier to get loans from bank. From 2000 to 2003, the FED coordinated the interest rate from *6.5% to 1%*,[8] from the fact of history we believed that excessive credit growth contributed the serious degree of financial crisis. So in this case we believe that the credit was increasing housing instead of business investment.

2.3.4 Predatory lending

Predatory lending means the lenders use unscrupulous way to let borrowers to enter into unsafe secured loans. This created negative amortization that the credit consumer didn't notice until the loan transaction had been consummated.

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8 "Historical Changes of the Target Federal Funds and Discount Rates", Federal Reserve Bank of New York, January 9, 2003.

2.3.5 Deregulation

As we mentioned, the deregulation can be a very significant factor for financial crisis. Some economists believed that the regulation system and regulatory framework didn't follow the innovation of financial instruments. Like new derivatives or off-balance sheet financing. There are many typical examples may be discuss in the following chapters.

2.3.6 Increased debt burden or overleveraging

In the previous part we mentioned the leverage can be the main cause of financial crisis. For financial crisis in 2007, the overleveraging and debt burden were also important causes. From the increasing of leverage ratios during 2003 to 2007 of investment banks, the financial institutions became highly leveraged, the appetite for risky investments was much higher than before. The potential loss was also increased. Also the usage of complex financial instruments in leverage are virtually impossible to reorganize in bankruptcy and they all need help from government.

2.3.7 Commodities boom

This cause mainly shows the highly increasing of commodity prices followed the crash of housing bubble. For example, the price of oil became tripled from 2007-2008 from \$50 to \$147. One reason of this situation was the money outflow from the housing market and inflow to other markets. As another example we can see the price of copper during these years in the following figure.

Figure 2.4 Global copper prices

Source: "Historical Copper Prices and Price Chart", Investment mine

Because of the investment transport, the price of commodities was increasing in a fast speed. From the figure we can see the price of copper became tripled as well. The destabilizing effects of this kind of price variance were one of the most contributory factor for the financial crisis during 2007-2008.

2.3.8 Systemic risk

Systemic risk is the possibility the entire industry or economy trigger by events at the company level, this risk would cause severe instability or collapse the whole industry.

This reason is considered as one of the main reason of financial crisis in 2008. The opinion believes that financial crisis is only a symptom of another deeper or stronger crisis, this crisis can be a systemic crisis of the capitalism itself.

Ravi Batra, an Indian-American economist mentioned a theory, he said that the growing on inequality of capitalism generate speculative bubbles and cause in depression.[9] He also mentioned that the relationship between "demand gap" and different wages and productivity growth explains financial deficits and debt. It also related to the stock market development.

From the central thesis of *James Burnham's 1941 seminal book*,[10] we can find some opinions about managerial revolution. He mentioned that the manager's capitalism replaced owner's capitalism, companies are not working under guide from owners but managers. So managements runs the company for their benefits instead of for shareholders. Also in the stock market, managers always focus on the change of share price instead of create value.

On the side of technological advances, the *large-scale momentum*[11] is considered as one pivotal reason of financial crisis in 2008. The high development of computer and internet technology has magnified the momentum effect and cause the unstable of financial sector.

In America, *Robert Reich* attributed the recession economic situation to the stagnation wages. Because of low wages, people need borrow money to meet their cost.

2.4 Basic economic indicators

Economic indicators is considered as great tools to show performance of economic and also allowed people to predict the future performance. Most of them are statistic of economic activities of chosen areas and periods. In order to analysis and shows economic situations during the global financial crisis, economic indicators can be significance references that offers objective data for analysis of economic situations.

[9] "Weapons of Mass Exploitation?". Batra, Ravi, Truthout.org. Retrieved June 4, 2011

[10] "The Battle for the Soul of Capitalism". Bogle, John, Yale University Press, November 27, 2006.

[11] "The Big Mo: Why Momentum Now Rules Our World", Mark Roeder. January 1, 2011.

In this part we mainly focus on introduction of basic economic indicators and they can be great tools for us to analysis economic situations of China and U.S during the global financial crisis.

2.4.1 Gross Domestic Product (GDP)

According to definition of *Organization for Economic Co-operation and Development*, the gross domestic product is defined as "*an aggregate measure of production equal to the sum of the gross values added of all resident, institutional units engaged in production"*.[12]

GDP is the most common indicators in financial analysis. It mainly shows the performance of economic of countries or regions, especially situations of industry sectors.

Rather than sales, GDP focused more on value added, it added value added of every firms during production activities. For example, if a firm purchase electronic components and adds value to it by producing a totally new radio, the GDP would counting both value of electronic components and radio.

Also GDP is a significance indictors to show the growth of economy from one year to another. By comparing recent GDP growth rate with history data it's easily to find the situation of economic in some regions or countries. It can be a very important factor to determine whether the economy of chosen region is in recession or in recovery.

2.4.2 Unemployment rate

Unemployment rate is focused on employment status of chosen countries and regions. It mainly shows the prevalence of unemployment in chosen areas and it's a percentage of unemployed individuals in all individuals in labor market.

Compare to GDP, the unemployment rate is more intuition, it directly shows the situations of people's employment status and markets. During recessions, the unemployment rate were almost higher than normal situations, it shows markets were facing crashes and a great amount of enterprises or firms were facing troubles even bust.

2.4.3 Inflation rate

Inflation rate mainly focus on changes of price levels of goods and services in countries or regions during a chosen period. When the inflation rate is positive, it means compare to previous time period, during this period products and services own higher prices and the purchasing power of currencies is reduction.

[12] "OECD", OECD, August 14, 2014.

We can say that inflation has both positive and negative effects to economic. Economists mainly believe that stable and low inflation rate can be the best situation. But high inflation rates often appears because of excessive growth of money supply.

2.4.4 Trade surplus and trade deficit

Trade surplus and trade deficit can be defined as a balance of trade. It shows the relationship between imports and exports of a country. If the exports is higher than imports, the positive balance can be called as a trade surplus, if the exports is lower than the imports, the negative balance can be called as a trade deficit.

Trade surplus and trade deficit can show situations of countries in international trading. Also it can be a significant indicators to judge situations of export and import industries of countries during financial crisis. By comparing history data and current data we can concluded the damage of export and import industries during financial crisis.

2.5 Financial market of U.S. and China

Financial market is a very important part in economic, in order to analysis the financial market during the Global financial crisis, we introduced the most important stock market of China and U.S. in this part.

2.5.1 Shanghai Stock Exchange

As one of the biggest stock market in China, Shanghai Stock exchange is the 6^{th} largest stock market in worldwide and its index is called Shanghai Stock Exchange composite (SSEC).

Even if the scale is big, but the history is quite short. It was founded in 26 November 1990 and it also set barriers to foreign investors. Compare to another important stock market in Hong Kong, Shanghai Stock exchange is still not complete opened to foreign capitals. The graph of SSEC in recent years can be seen in Annexes.

2.5.2 Hong Kong Stock Exchange

Hong Kong Stock Exchange is the second largest stock exchange market in Asia and its index is called Hang Seng Index (HSI).

Hong Kong Stock Exchange was founded in 1891, it’s a mature and international market. There is not any barriers for foreign capital and more independence. The graph of HSI in recent years can be seen in Annexes.

2.5.3 New York Stock Exchange

New York Stock Exchange is the main stock exchange of U.S. and it’s the biggest stock market in the world. It was founded in 1817 and owned nearly 200 years history.

Both Dow Jones Industrial Average and S&P 500 are traded in this market and in 2007-2009 it directly faced crashes and pressure from Global financial crisis. The graph of Dow Jones Industrial Average index and S&P 500 in recent years can be seen in Annexes.

2.6 Summary of Chapter 2

The financial crisis started in U.S. and diffused across worldwide in a very short time. The main causes of this financial crisis was the subprime lending and housing bubbles in U.S. So this financial crisis can be also called as "Subprime Crisis".

By analyzed the background of China and U.S., we can find before financial crisis, China owned a great amount of trade surplus and U.S. had big amount of trade deficit, as one of the biggest international trader of U.S., Chinese export industries were highly related to U.S. markets.

Even though at the beginning of global financial crisis China had a better situation than other countries especially U.S. but this situation didn't last long. The export industries was destroyed by the global financial crisis and a great amount of export firms were bankrupt during that period. In U.S. because the mature in high-technology industries the damage to the export of U.S. was smaller.

3 Impact of Financial Crisis on Macroeconomic Situations of the USA and China

In this chapter, we pay out attention on China and U.S., both of them are biggest economies in the world, how did they survived from such enormous financial crisis and what kind of impact was caused from global financial crisis on these two countries. We talk about the macroeconomic situation of USA and China in this chapter to figure out that their similarities and differences.

3.1 Background of China and U.S. during the beginning of global financial crisis

In January 24 2008, there was a very interesting data, the Chinese economy increased nearly *11.4%* compare to 2006.[13] Compare to history data, this was the fastest rate for over 13 years. It can be called as *double-digit growth rate* and people all believed that China can support and underpin the global growth in some ways. But the price level followed the increase of economy. The price of foods such as meat and cooking oil was rising as well.

Besides economic growth, substantial trade surpluses was also very huge. In the international trade between US and China, the bilateral *trade deficit* of U.S. with China reached over *$268 billion*,[14] this number occupied nearly *30%* of its global trade deficit.

The imports of U.S. from China was nearly five times as large as its exports to China. In foreign reserves of China, it owned over a trillion dollars. When the global financial crisis started, at first time people conjectured that China might be immune through this crisis. Some opinions believed that China could immune from the shock wave of financial crisis from the US.

They believed China was comparatively unaffected by credit crunch and subprime mortgages. Because the increasing of domestic demand instead of exports, China owned a kind of physic buffer to against economic crash from crisis.

People of China would continue purchasing TV sets or computers, etc. Domestic bank could be healthy and central government could also promoting growth using expansionary fiscal policies and monetary policies. But the truth was China found itself fall into the mess of financial crisis.

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13 "China's Economic Conditions", Wayne M. Morrison, November 3, 2008.

14 "Trade in Goods with China", United States Census Bureau, June 26, 2014.

In September of 2008, the Chinese central bank decided to cut interest rates for the first time since 2002.[15] Even though China owned a great growth rate, but the fast growth could be slowing more rapidly. From this fact we can clearly recognized that the global financial crisis was very huge that every countries in this world couldn't escape from its impact. Especially big economies such as U.S. and China.

As we mentioned in the previous chapter, the financial crisis of 2007-2008 started in US. In the early 2006, the housing bubble peaked and the real estate price crashed. In order to encourage home ownership, banks provided easier access to loans for borrowers to purchased houses. The overvaluation of subprime mortgages caused bubble kept increasing and the house price increased very fast.

According to the *U.S. Senate's Levin-Coburn Report*, we can concluded the crisis was the result of many causes. They believed that the crisis was the result of *"complex and high risk financial products; undisclosed conflicts of interest; the failure of regulators; the credit rating agencies and the market itself or rein in the excesses of Wall Street.*"[16] From this sentence we can find some information of economist's attitudes in America.

Since 1989, economists believe that *mortgage-backed security (MBS)*[17] can ease the pressure of high risk loans. The main institutions that issued MBS were Freddie Mac; Fannie Mae and Ginnie Mae. The interest rate of MBS was quite higher than national debt, so the high interest rate attract many investors put their money in this basket.

The MBS index of *Lehman Brothers* shows that no matter the interest rate changed, the yield of MBS always in the good position, the index kept positive in 10 years from 1996 and even in the worst situation in 1999 it still had 2.1% rate of return.[18] At the same time, the *global MSCI index* were negative in 1999, 2001 and 2005.[19]

Because of asset securitization failed in America, the real estate industries was crashed and the subprime crisis happened. This crisis caused a lot of houses sold by banks and the excess house supply caused the bubble of real estate industry crashed.

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15 "China Interest Rate", Trading Economics, 2009.

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18 "After Lehman, Banks Jettison Commercial-Property Debt". The Wall Street Journal. September 17, 2008.

19 "MSCI Index Performance", MSCI, 2009.

3.2 Impacts on export industries of China and U.S. during financial crisis

There is no doubt that global financial crisis has a huge impact on both China and U.S. In this part we introduced the impact on Chinese and U.S. export industries.

As biggest economy in worldwide, international trade can be one of the most important factor for their economy. In this chapter we analyze situations of export industries of these two countries during this economic disaster.

3.2.1 Impact on export industries of China

As we mentioned, China was crashed by the global financial crisis a bit of lag in 2008, but for some industry the crashed was already exist in the beginning of the year. The most visible affect was the damage to export-oriented light industry, especially in southern China.

Textile industry is one of the most important export-oriented light industry. China is famous with its Silk products and cotton. Not only in domestic market but also for foreign market.

To show the fact, we offer some data of history sale in 2007, in 2007 China exported 176 billion dollars of textile products and employed nearly 20 million workers.[20] When the global financial crisis happened, the textile industry was facing a slowdown.

Compare to the 19 percent growth in the beginning of 2007, in 2008 there was only 5.7 percent growth.[21] This number was the slowest growth rate since 2003. In Hong Kong, the most important center of China's export industry, was facing an unprecedented 11.3% decrease of output.[22]

Not only smaller firms but also larger firms was facing export difficulties. Gordon Yen, a Hong Kong garment maker told China daily: *"About 60 percent of our garment orders are indirectly tied with the US market. We worry that exports to the US will see a drastic drop this year as a result of the slowdown in the country's economy."*[23]

This could be a sign for followed crashed, according to the investigation of China Cotton Textile Association, 49.2 percent of companies in China were facing collapse, and 44.4 percent

[20] "The China Threat to World Textile and Apparel Trade", The American Textile Manufacturers Institute, Washington DC,2007

[21] "China and the Global Financial Crisis: A Comparison with Europe", Jean-Pierre Cabestan, July 9, 2012.

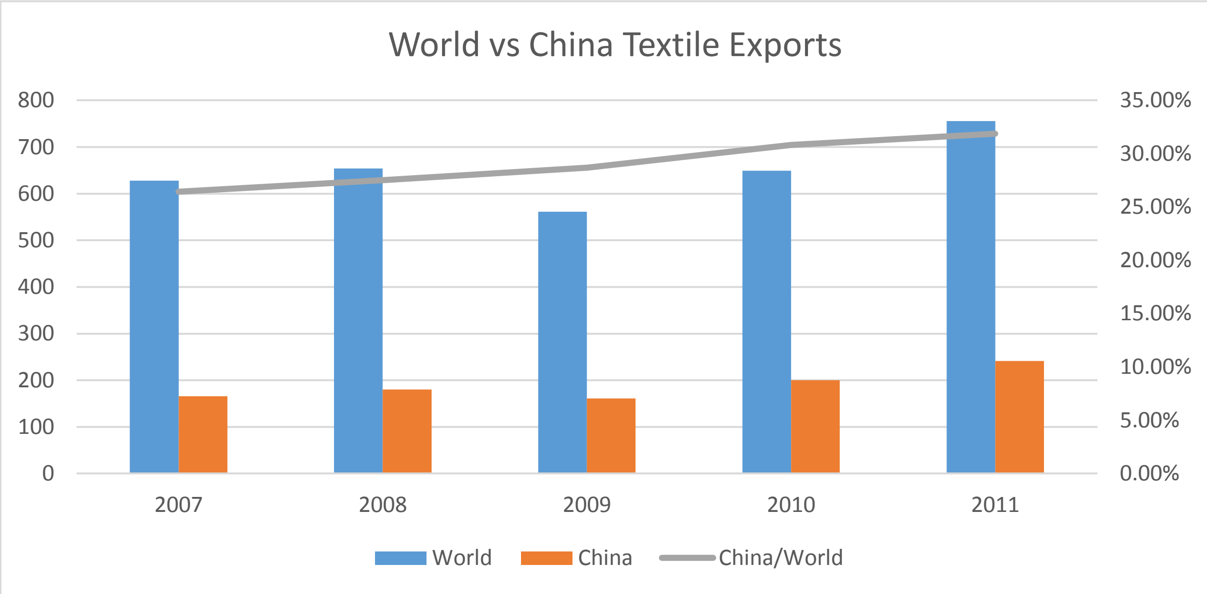
[22] "Forest Products Annual Market Review 2008-2009", Geneva Timber and Forest Study Paper 24, 2010.

[23] "Hongkong garment exporters bear brunt of subprime crisis", Hui Ching-hoo, February 1, 2008.

of companies were trying to sell the part that exported in international market to domestic market.

We can find out the trend of Textile exports during that period. The figure is as follows:

Figure 3.1 World VS China Textile Exports



Source: Reports of China Textile Industry, 23.07.2012

In Figure 3.1, we are possible to compare Textile exports in China and whole world. Chinese textile industry didn't survive during the global financial crisis. In the green line we find that the trend were nearly the same.

For Shoemaking industry in China, it was also facing similar problems. Shoemaking industry of China supported nearly 60% needs of the world, but shedding jobs was still needed in 2008.

In Guangdong, nearly 20% of shoemaking companies was collapse and according to the investigation of *Asian Footwear Association* that there were *150,000 to 200,000* workers was laid off in that period.[24] 15 percent of production capacity was cut.

Chinese firms was facing pressures from revenues and cost that tied to global economic tensions. The increasing price of food and raw materials also particularly affected Chinese resource-intensive manufacturing industries.

Steelmaker industry was a great example. Baosteel, one of the biggest steelmaking company in China increased steel prices by 20 percent in the reason of absorbing a 65 percent rise in iron.

[24] "Losses mount in Chinese export industry", Alex Lantier, April 14 2008.

In this period, thousands of firms were collapse and a great amount of workers were laid off. According to data from official statistics, nearly 10 million of migrant workers returned to their home because of the damage.

When we moved on to the macro data of International trading in that period, we can find in 2008 export of China fell 2.1%, it was the first decline since 2001. As we all know that China is famous as the center of Asia production net-work and world chunk.

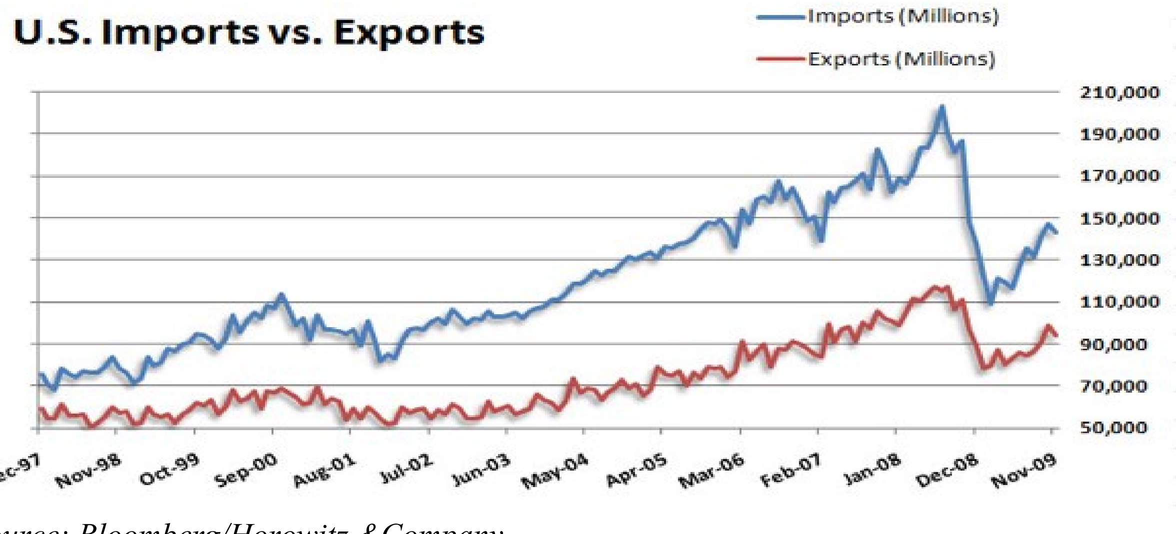
Compare to other regions in Asia, in the same period, Taiwan declined 41% in December and 17% for South Korea. At the same time, China's import declined more than 21%.[25] On the other hand, the decline of commodity prices can be benefits to China which helped to ease the inflationary pressures.

3.2.2 Impact on export industries of U.S.

Compare to China, U.S had totally different situations. The *U.S International Trade in Good and Service report*[26] released in the end of 2008 and showed that the exports of good and service grow 12% in 2008 while imports increased 7.4% at the same time. At the end of 2008 the international trade became the lowest since 2003.

In the history, import of U.S. were much higher than export. In a long period, U.S. was in trade deficit. During the financial crisis we can figure out the changes both in imports and exports and find out the pressure from Global financial crisis to U.S. export industries. From the following figure we can find the comparison of imports and exports during that period.

Figure 3.2 Imports and exports of U.S from 1997-2009



Source: Bloomberg/Horowitz &Company

[25] "The financial crisis and its impact on China", Dirk Schmidt, January 2009.

[26] "U.S. International Trade in Goods and Services", U.S. Census Bureau, October 2014.

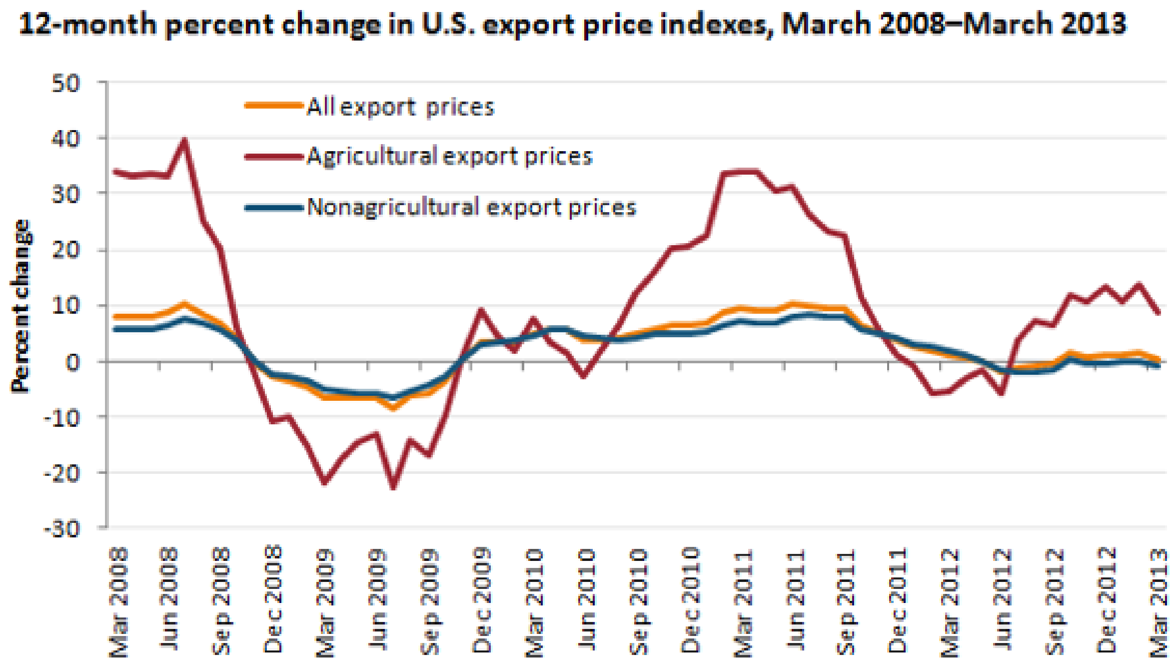
From 2009, under the pressure of global financial crisis, the exports of goods and services declined from $924.4 billion to $745.9 billion according to the report,[27] decreased nearly 19.3%. Compare to import, the situation of export was better, the decline of import was nearly 28.8%, almost 10% higher than the situation in export.

Even though at the start of 2009 the export was decreasing under the pressure of declines in world's import, but we can find the fall in export was lesser than fall in imports. The fall in import was quite bigger than exports.

The main reason of fall in import was the falling energy prices. In the first half year of 2009, the price of crude oil fell nearly *52.2%* compare to same period in 2008.[28] As one of the biggest oil-importing countries, U.S. import of crude oil fallen to *$95.1* billion through the first half year of 2009.[29]

We can pay our attention on the export price indexes during this period in U.S. From the figure below we can get the change of export price. We can say the downturn of U.S. exports was slowing. On the fourth quarter of U.S in 2008, the export of goods and services declined 11.5% but at the first quarter of 2009 it only declined 1.3%.

Figure 3.3 Percent change in U.S. export price indexes from 2008-2013



Source: U.S. Bureau of labor Statistics

[27] "U.S. EXPORT FACT SHEET" June 2009 Export Statistics Released August 12, 2009.

[28] "China's Internet-based economy", China daily, November 15, 2008.

[29] "U.S. EXPORT FACT SHEET" June 2009 Export Statistics Released August 12, 2009.

In Figure 3.3 the export prices of nonagricultural export prices was nearly kept in the same level during the financial crisis, the main reason of price fall was the downturn of agricultural export prices. We can find some information that during financial crisis, the export of pharmaceutical preparations increased $4.3 billion, the export of civilian aircraft increased $825 million and the export of industrial engines increased $665 million.[30]

Compare to China, because the mature in high-technology industries, even in the financial crisis the damage to the export of U.S was smaller than in China. Even though the agricultural export products was damaged by the financial crisis, but the U.S. international trade situation were still support by its high-tech industries. But in China the situation was worse, labor-intensive and high export-dependent caused the export industries in China faced giant recessions.

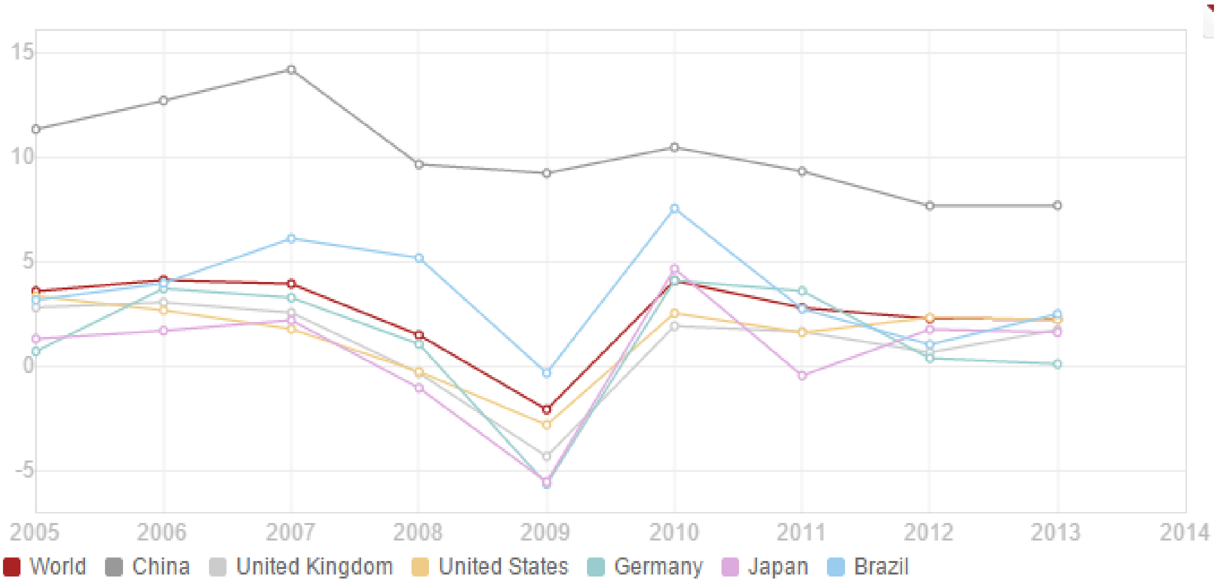
3.3 Economy of China and U.S. in 2007-2009

In this part we analysis the macro economic data to find out economic situations of China and U.S. in the worldwide.

3.3.1 GDP of China and U.S. in 2007-2009

In 2007 the GDP of China was 25,731 billion CNY and the GDP growth rate was 13%. In 2008 the GDP of China was 30,067 billion CNY and GDP growth rate was 9%. Because as one of the biggest countries in the world, we only compare its growth rate to other countries.

Figure 3.4 GDP growth rate in worldwide during 2007-2008



Source: The World Bank

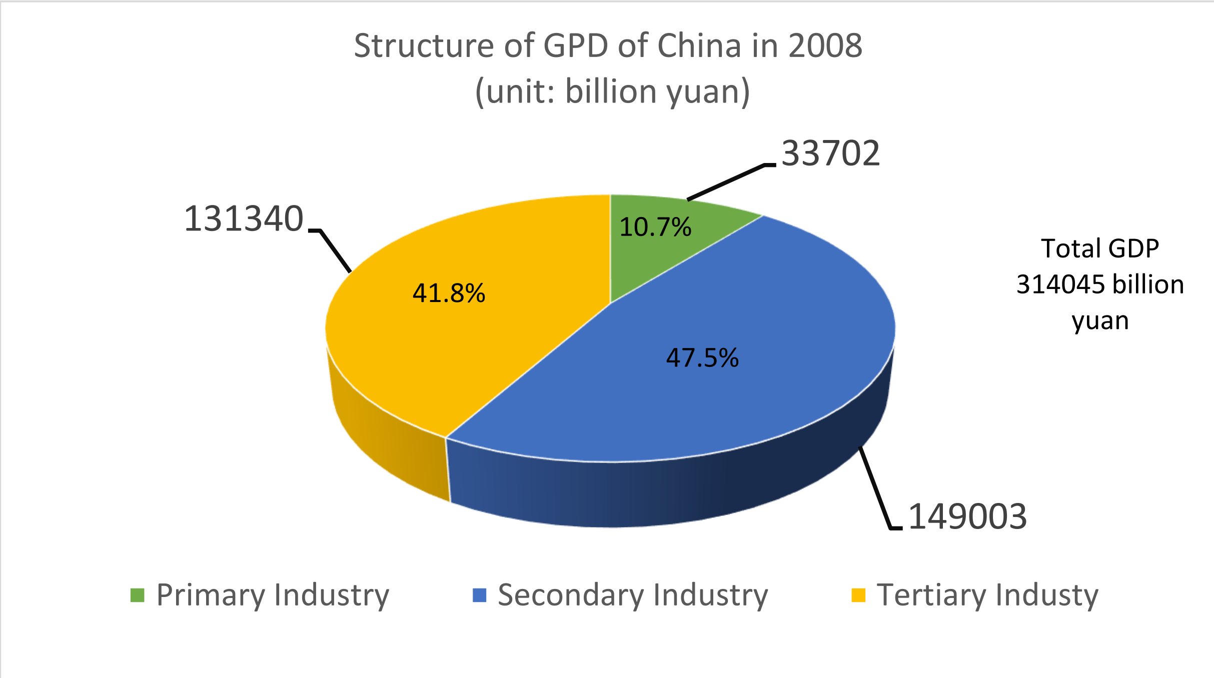
[30] "U.S. EXPORT FACT SHEET" June 2009 Export Statistics Released August 12, 2009.

We can figure out that China owned highest GDP growth rate compare to other countries in the world and average level of world. Since 2008, Chinese economy was having a rapid development. It mainly because China was facing the opportunity of economic transformation.

Even though the global financial crisis did some damages to the economic but the GDP was still growing with higher speed compare to other countries in the world. According to history data. Before 2003, primary industry shared a big amount of percentage in Chinese GDP and we are able to find out the economic structure of China in 2008.

In order to find out the economic structure of China in 2008, we divided Chinese industries to three different kinds, Primary industries; secondary industries and tertiary industries. We can find the GDP structure of China in 2008 in the figure below. From this figure it's possible for us to find the industry structure of China in that year.

Figure 3.5 GDP structure of China in 2008



Source: Chinese Report

From the figure we can find that secondary industry became the most important industry of China in 2008 and primary industry only had 10.7%. Rapid development of secondary industry and tertiary industry was the main reason why China hold such a high rate of GDP growth since the global financial crisis.

We can find the yellow line shows the GDP growth rate of U.S. during these years. Compare to red lines that shows the average GDP growth rate in worldwide, the GDO growth rate were below average during 2005-2012. After the second Great War, U.S. became the biggest economies in the world.

But the trend of GDP growth became weak in recent decade. Even though we ignored the negative GDP growth rate in 2008 and 2009 (Because of financial crisis), the average GDP growth rate in 2010-2013 was only 1.95%. It's nearly 1 percentage below the previous decades.

In recent decades, after the recovered of shattered economics, the global economic was growing in a great speed. As a great example, as we mentioned China had a great GDP growth rate in recent years. Even in 2007-2009 it still had nearly 10% of GDP growth rate. We can figure out that U.S. is losing its dominance.

U.S. economic growth was led by private investment, exports and consumptions. During the financial crisis, the amount of all those factors were declined. If we try to compare these two countries use method like business cycle, we can say China was in the recovery or nearly boom section but U.S. was in the recession section in those years.

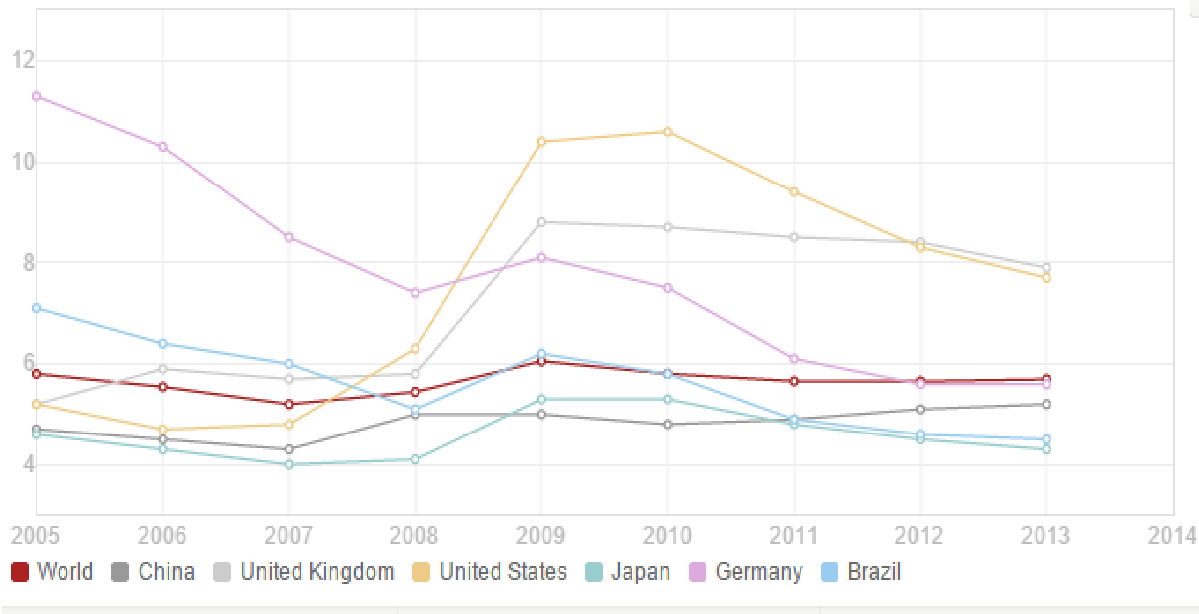
The government of U.S. try to cut tax and encourage spending to compensate for the crisis, but this act didn't show much discrepancy that they expected. CBO calculated that in 40 years the average of percentage of tax in GDP is 17.9%. And during the global financial crisis, the percentage was 17.6% in 2008 and 15.1% in 2009-2010. We can see this cut didn't do enough. Until the first quarter of 2010, the real gross domestic product didn't return. CBO estimated until 2017 the GDP would not return to its potential level.

3.3.2 Unemployment rate of China and U.S. in 2007-2009

In 2007, the unemployment rate of China was 4.0% and the unemployment rate was 4.2% in 2008. Compare to the situation in the world, China has a better situation even with a great amount of population. As we mentioned, secondary industry is becoming the most important industry in China. But unfortunately most of industries in secondary industry were labor-intensive industries, they were lack of technology and can be easily influenced by the market fluctuation.

We can find out the data in the following figure of unemployment rate in worldwide and find out the situation of China compare to other countries.

Figure 3.6 Unemployment rate in worldwide



Source: The World Bank

The unemployment rate of China were only higher than Japan in 2007 and 2008, we can see the grey line shows China had a quite low level of unemployment rate in the world wide.

Back in 2004, James Wolfensohn, the former World Bank president warned that the social gulf between rich and poor in China is very big that Chinese government should solve this problem. Because of high development of Chinese GDP, people considered this warning as an exaggeration.

But in global financial crisis, China cannot avoid being dragged because China owned a giant amount of cheap labor platform for foreign corporations. When the global financial crisis happened, those cheap labor who worked for foreign corporations were facing dismissal.

According to Zhou Tianyong, a researcher at the central party school in Beijing, the real unemployment rate was higher than the data showed in some area.[31] Because as a giant country, China has a great amount of population and social gulf between rich and poor was very clear. For example, people who worked in Beijing has triple salaries higher than people who worked in some small town. So in some poor province of China, the unemployment rate could reach 12% or more.

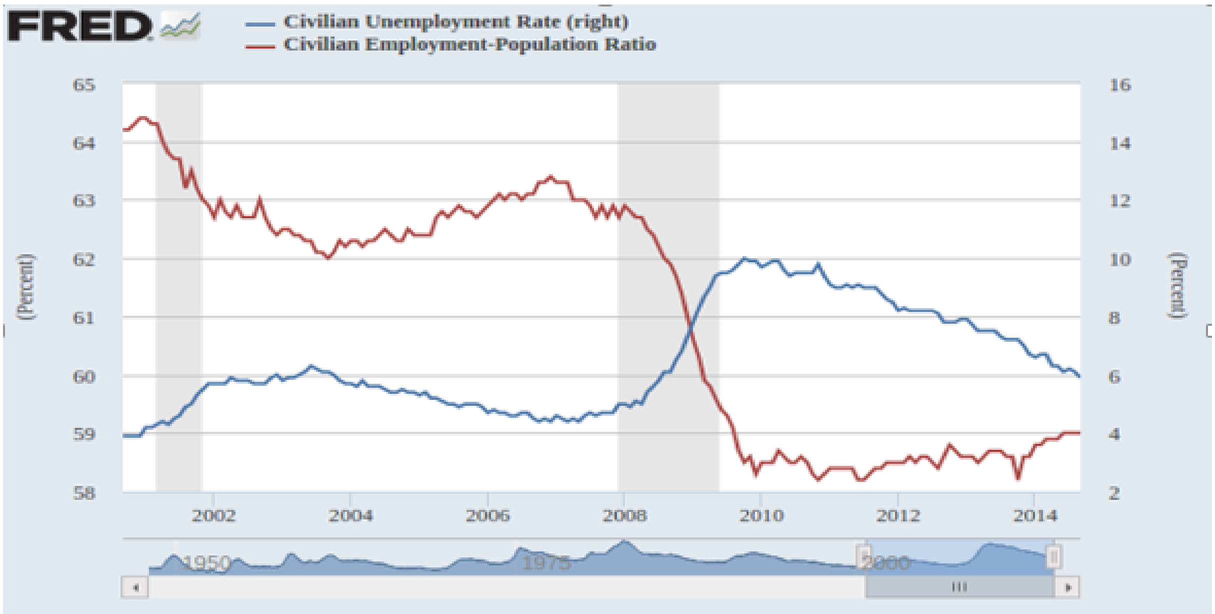
According to Zhou, every 1% decline in growth of china's labor-intensive industries can translated into the loss of nearly 8 million jobs. From the GDP analysis we can assume that it would cause nearly 24 million people lost their jobs.

[31] "Journal of Current Chinese Affairs", China aktuell, 2009.

China's dependency on export industries especially manufacturing means that if the exports decreased, the country would face price falling, swelling in inventories and factory closures. On the other hand, the development of technical level allowed corporations using machines to replace human labor. It caused a lot of unemployment. Most of people who lost their jobs were not possible to find new jobs in the reason of lack of other skills.

Compare to China, the unemployment rate of U.S. were in a high level among these years. Especially since 2007, the unemployment rate started to rose, from 5% to peak at 10% in 2009. We can see the trend of yellow line, even if it recovered in 2013 but the average unemployment rate were still higher than other countries in the figure. Because of global financial crisis, nearly 8.6 million jobs were lost and until 2014 the unemployment rate didn't back to original situations. We can compare the civilian unemployment rate and civilian employment-Population ratio in the following figure.

Figure 3.7 Civilian employment situation from 2002-2014



Source: FRED, 2014 research.stlousifed.org

The blue line and red line directly shows the employment situation among these years. Started at 2007, the unemployment rate started increasing and the employment-population ratio also decreased. Compare these two lines, we can find the red line's margin is bigger than the blue line.

The employment-population ratio was not influenced by the unemployment rate but also influenced by aging population. From the peak of employment-population that it fell from 63% to 58% in 2010 and almost kept in the same level even until 2014. The main reason of this was a great amount of people were retiring and left their work.

If we only focused on the employment situation of these two countries we can conclude that Chinese economy were more energetic but U.S. economy were more mature. U.S. owned powerful economic strength but the global financial crisis did a great damage to the economic. The ability of resist pressure of U.S. was not good enough as they expected.

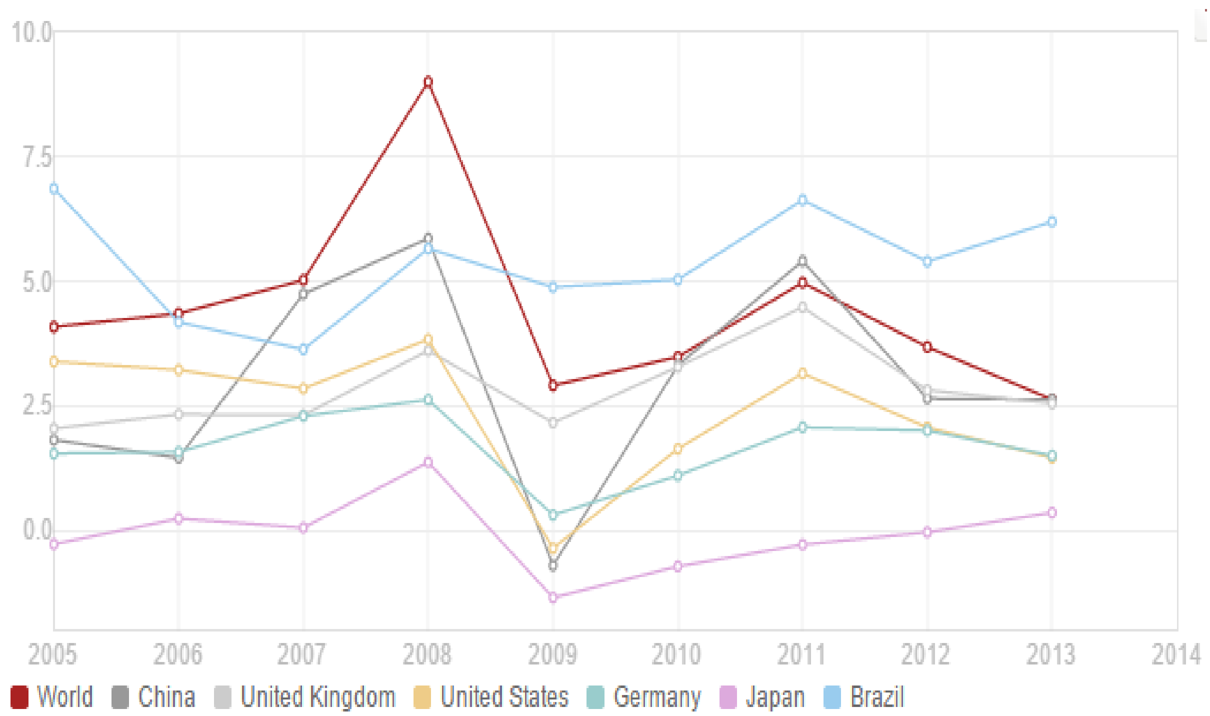
The behavior were also different from China, the mix of jobs of U.S. shifted more to part-time jobs during the global financial crisis.[32] In order to decrease unexpected loss and make cost more flexible, employers hired more employee for part-time jobs.

These changes helped companies became more flexible in matching costs to revenues. But the situation only appeared in the recession period, after the financial crisis, most of new created jobs were full time jobs.

3.3.3 Inflation rate of China and U.S. in 2007-2009

Inflation rate of China in 2007 was 4.8% and 5.9% in 2008. We can find out the data in the following figure of inflation rate in worldwide and find out the situation of China compare to other countries.

Figure 3.8 inflation rate in worldwide



Source: The World Bank

In 2007 and 2008, China had a quite high level of inflation compare to other countries in the figure. Even though it were lower than the average of the world. According to China's

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32 "FRED Datbase-Full and Part Time Jobs", Prenite Julion, July 2014.

National Bureau of Statistics that China was facing the fastest pace of inflation rate in over 11 years.

One important reason of this inflation rate was the increase of food prices. Food prices upped 23.3% from February of last year. At the start of 2008, the snow storms destroyed harvest and damaged the transportation of food to cities.

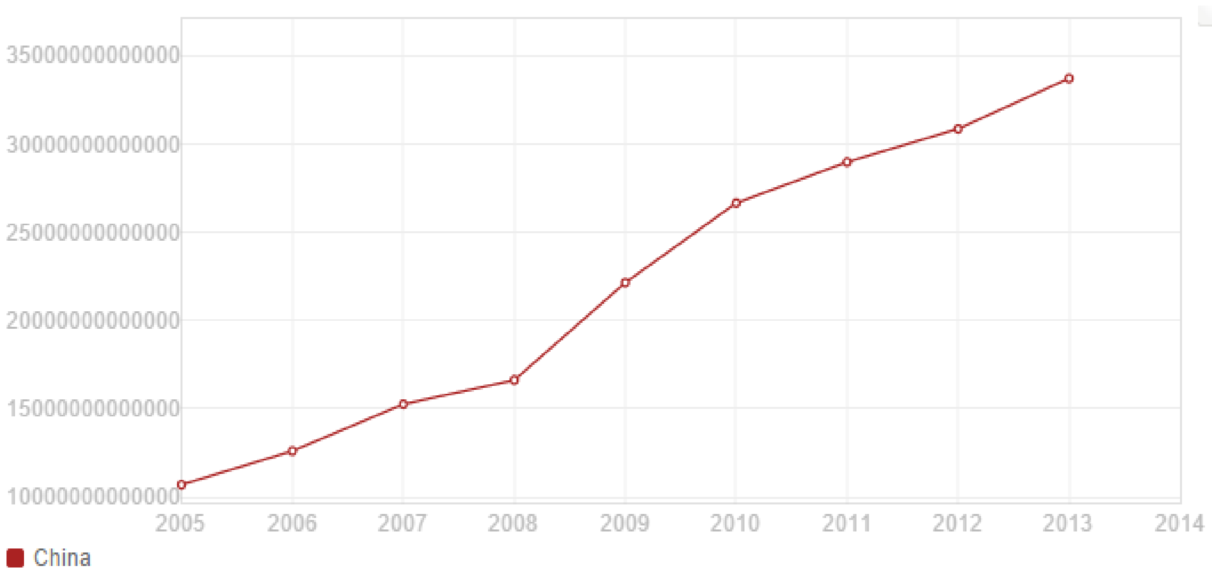
The demand was really high and supply kept decreasing. On the other hand, the increasing of global commodity prices also caused the imports of China became more expensive. Because the global financial crisis, the exports of other countries were declined.

Even though the decline of commodity price and crashed of commodity bubbles help to decline pressure of inflation but the inflation rate were still the highest among these years. So the increase of inflation rate had not only natural causes but also economic reasons.

Yu Song and Hong Liang, two Goldman Sachs economists also believed that even though the snowstorm contributed a lot, but they also believed that the rapid money supply growth were also the main driver of this high inflation.

In order to purchase dollars from the investment inflows and also international trading, Chinese government issued a great amount of Chinese currency every week. Chinese banks were also lending aggressively and created money in circulating. In the following figure we can find the current money of China from 2005-2013, this money is the sum of currency that in current local currency.

Figure 3.9 Local current currency of China during 2005 to 2013



Source: The World Bank

In Figure 3.9 we can find the trend before 2008 was quite gentle, from 2008-2009 it became sharp and the growth rate of 2009 was nearly triple than growth rate in 2008. We can prove the words from two economists that the increasing money supply also contributed a lot to the high inflation rate in 2008.

In 2009, China were facing the deflation situation. We can see even if the local current currency increased, but the inflation rate still fall under 0. The deflation situation mainly because of two reasons, the first one was the slump in prices of commodity, when the bubble crashed and the inflation was cut via lower price of commodity and material.

The second reason was the lead of global financial crisis that cause global spare capacity and this lead downward pressure on prices. For China the spare capacity were more serious, in order to return to its original position and kept the export up, China needs to exporting deflation to rest of world. The downward of Chinese export products also gave pressure to domestic market of other countries.

Compare to China, inflation rate of U.S. were lower during financial crisis. We mentioned that the global financial crisis was started under the background of economy bubbles. In 2008 the inflation reached top for 5.6%, it was the highest in recent decades.

Different from China, in the U.S. there were 5 times of deflation in the history, the inflation rate were not so high even in economic bubble.

The first time was the depression during 1818-1821, the agricultural commodities decreased nearly 50%. The second was the depression during 1830-1840, it followed the panic of 1837. The third one was after the Civil war that mainly because the return to gold standard and over printed of paper money during Civil war.

The fourth one was between 1930 and 1933 that U.S. faced the great depression. The fifth one was the one now we talking about, we can see in 2009, the inflation rate was below 0, became deflation. This was quite often in the history as we mentioned. But after the permanent abandonment of the gold standard in 1948, until now there was only this deflation appeared.

The main factor of this deflation was the drop of energy price, in August 2009 the decline in energy price nearly caused 1 percentage of dropped in consumer prices. In response the Federal Reserve decided to decrease the interest rate in order encourage private investment.

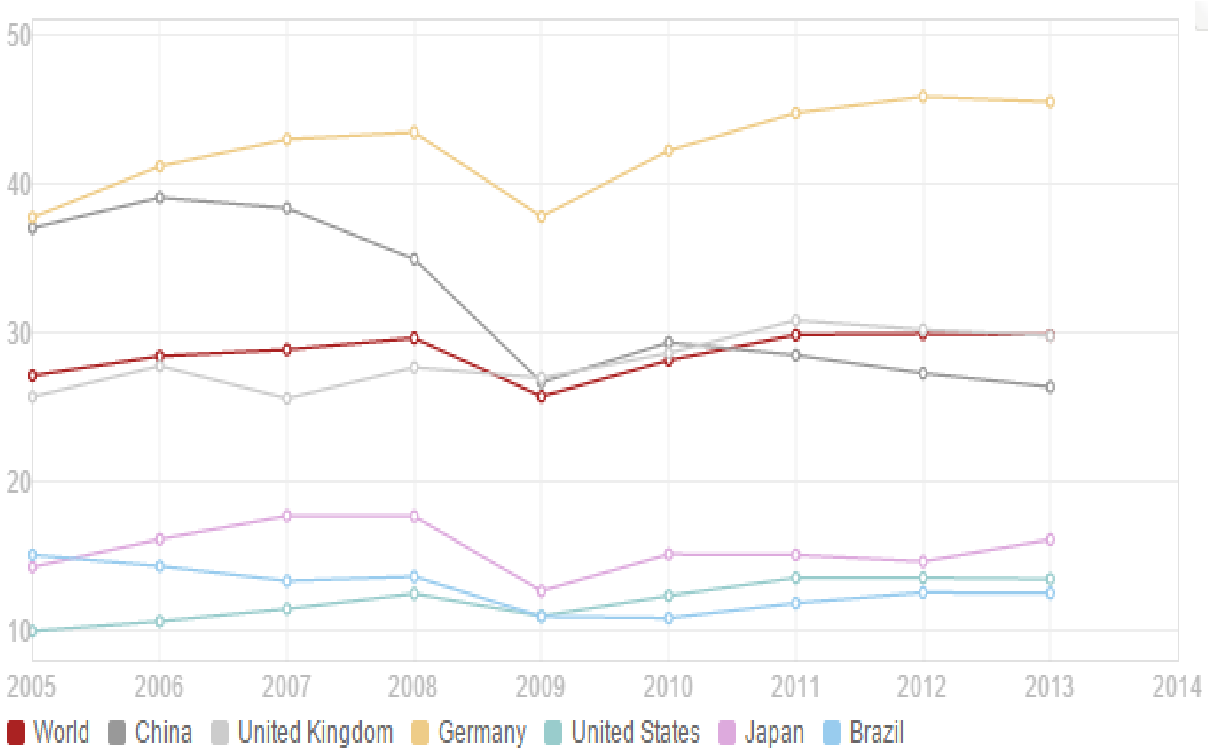
But this cut may lead investors fall in the liquidity trap. The U.S. was experiencing deflation and the first deflation of -0.38% in March 2009 and became -2.1% in July. The deflation also influenced the wage of people, the average wage of employees would be cut and became lowest since 1938, and the minimum wage was indexed to inflation.

3.3.4 Trade surplus of China and U.S. in 2007-2009

As we mentioned, China was one of the biggest export country in the world, also as a country with giant market and high population, China's import is also huge. In this part we can check the data of China's import and export and also its trade surplus and find out the influence of global financial crisis.

As we mentioned in 3.2.1, the export industry was facing a big crashed during the financial crisis. Especially export-oriented industries like textile. A great amount of enterprise were facing bankrupt. In the following chart we can find the situations of exports of goods and services in worldwide and find the status of China. Exports can be shown as the percentage of GDP. So we can fairer compare China and other countries.

Figure 3.10 Export of goods and services in worldwide from 2005-2013



Source: The World Bank

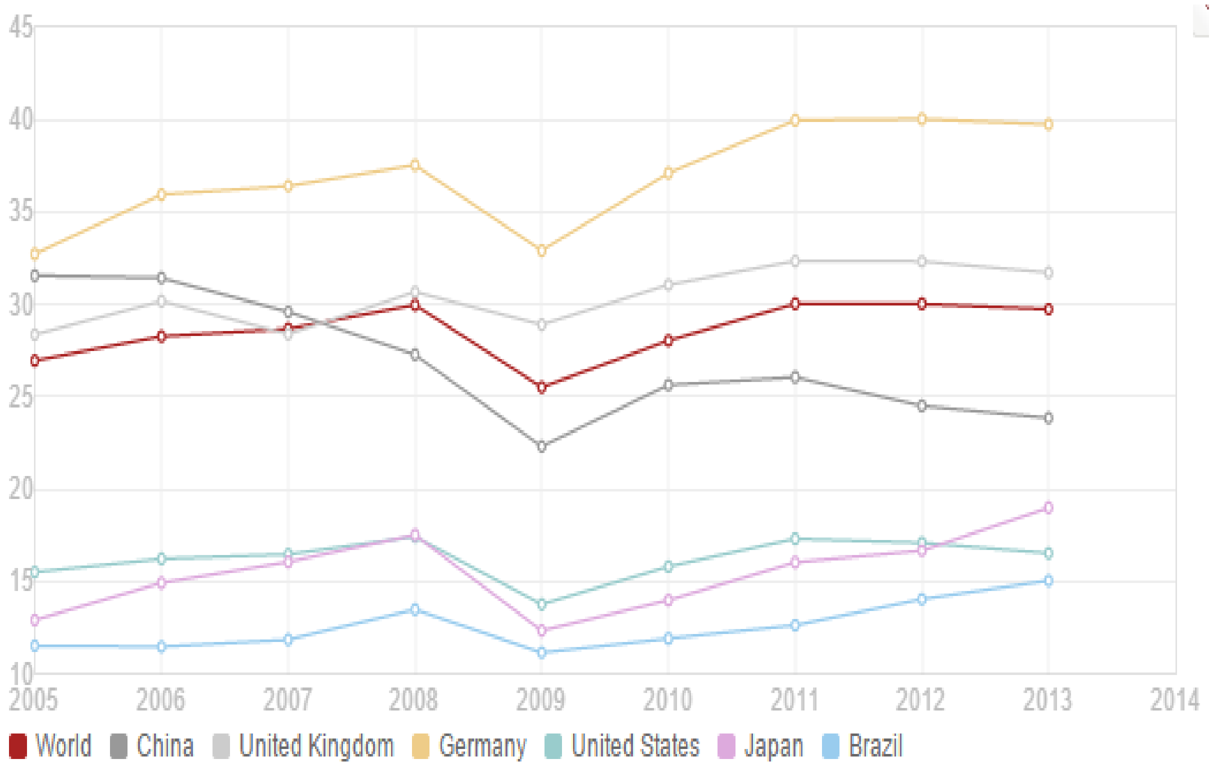
From the figure we can figure out that China had a great amount of export before 2008. Compare to other countries, the export in percentage of GDP only lower than Germany.

But from 2008 to 2009, the export level fell down and nearly equal to the average in worldwide. These data can prove that the export industries in China was facing disasters.

Compare to China, U.S. had lower level of export. From 2005-2013 the export were around 10% of GDP. Even in the financial crisis the export of U.S. still kept stable.

Then we move on to the import in worldwide, in the following figure we can find the import in worldwide and find out the situation of China and U.S.

Figure 3.11 Import of goods and services in worldwide from 2005-2013



Source: The World Bank

The import of counties in worldwide were sharing the same trend among these years. But China was the only country in this figure that had declined on import during 2007-2008.

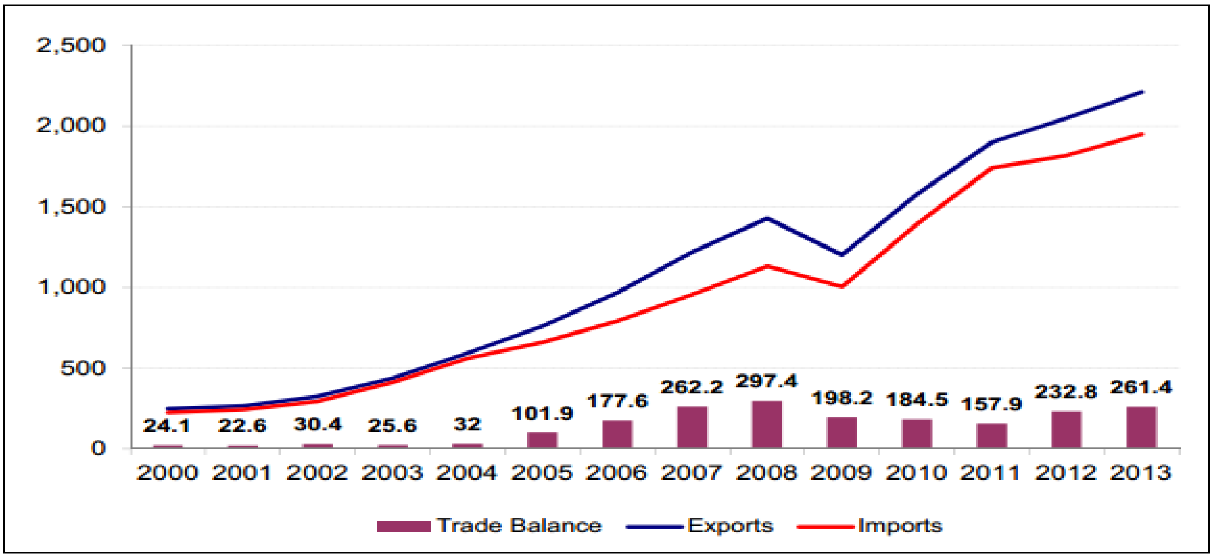
It mainly because the high GDP growth rate of China, even though the import was increasing. But the percentage in GDP was declining. We can check the China's merchandise Trade from 2000-2013 in the following figure and find out the real number of China's international trade.

Compare to China, U.S. had lower level of import during these years. But the level was 5% higher than export. The import were around 15% during these years.

So we can conclude that U.S. was in trade deficit in a very long term. The line of import also shows the same trend of export. In the global financial crisis, the international trade was hit and the volume of export and import goods and services were both declined.

We can compare the merchandise trade of China and U.S. among these years with two figures.

Figure 3.12 China's Merchandise Trade from 2000-2013 ($ billion)

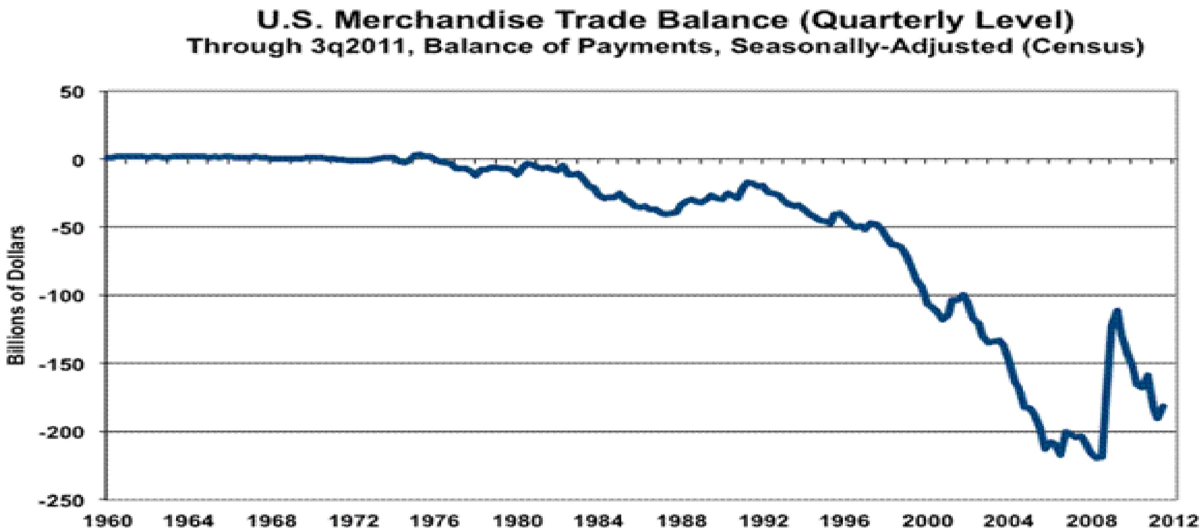


Source: The World Bank

In 2008, under the pressure of Global financial crisis, the export was declining and the industrial production sharply drop. The power generation was zero growth and a large number of small and medium export enterprises were bankrupt, the unemployment surges occur in coastal areas.

After high growth rate of exports from 2000-2008 and compare to imports with lower growth rate, the trade balance in 2007-2008 were quite high. Because of overreliance on exports industries, the crash from global financial crisis was huge in China.[33] Then we moved on to the Merchandise trade of U.S.

Figure 3.13 U.S. Merchandise Trade from 1960-2012 ($ billion)



Source: The World Bank

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[33] "The Effects of the Global Financial Crisis on China's Financial Market and Macro-economy", Linyue Li, December 11, 2011.

As we mentioned, U.S was in trade deficit in a long term. From figure 3.16 we can find that since 1976, the merchandise trade balance was negative. And the deficit reached bottom in 2004. Since 2008, the trade balance had a rally, it mainly because the decline of import while the export nearly kept the same level even increased. We can say the import market was seriously damaged by the global financial crisis but the situation of export industries were better than China.

3.4 China's solutions

China's solution can be shown in two parts, the act of China Central Bank and the economic stimulus act that helped China survived in global financial crisis. Not all of them were effective but in some part these acts helped China recovery after the global financial crisis.

3.4.1 Responses of People's Bank of China

As central bank of China, People's Bank of China became a very important role for China's recovery after the global financial crisis. In order to help Chinese economic recovery from damage of global financial crisis, monetary expansion from People's Bank of China that support the expansionary fiscal policy. Bank credit increased nearly 7.3 trillion RMB in the first half of 2009.[34]

Even though the expansionary monetary policies and fiscal policies helped Chinese economic, but inundated liquidity of money caused a lot of unexpected troubles. Especially the interest rate in inter-bank market even lower than the interest rate of deposits.

As we mentioned, Chinese banking system was safer than western banking system and the expansionary policies already helped Chinese economic in short-term, but in medium and long-term the effects were not all positive.

First of all, the pattern of China's growth was the investment overdrive. The investment rate increased from 25% to 50% because of the stimulus package. By checking the history after financial crisis, the overcapacity of China became more serious than before.

Second, the investment focused on infrastructure instead of new factories, we can find details of stimulus act in following part, we can say the investment efficiency was not as high as we expected. The decrease of investment efficiency would cause negative impacts on Chinese economic in long-term. Also those investment for infrastructure needed time to reap benefits, they were almost all long-term investment.

[34] "China's response to the global financial crisis", Yu Yongding, CASS, Beijing, January 24, 2010.

Third, the expansion monetary and fiscal policies caused over-enthusiasm of government, the great amount of investment from government crowed out private investments. We can say most of projects were financing by commercial loans that guaranteed by governments.

In the other hand, because of loose monetary policies in China, low interest rates were not necessary. But the tiny interest rate in China already caused medium and small sized firms discriminated by state-owned enterprises, especially those monopolistic firms.

3.4.2 Economic stimulus act of 2008 and 2009

In order to solve all those bad effects caused from the global financial crisis, China started the *Chinese economic stimulus program* on 9 November 2008. In this program, a stimulus package with 4 trillion RMB (US$ 586 billion)[35] was announced by the state council of the people's republic of China.

This program attempted to minimize the bad impact of the global financial crisis. China as the world's second largest economy, the improvement of its economic situation could be a very important part to fight against the global financial crisis.

In response, on June 2009, the growth forecast in China for 2009 of the World Bank raised from 6.5% to 7.2%,[36] it aimed to sings that the economic situation of China was doing better than expected, which was helping by the stimulus program. But the exports of China were still down, the main reason of this was the rest of the world still faced the global recessions.

The 4 trillion RMB program formulated ten measures to help revive Chinese economic.[37] These ten measures focused on Public infrastructure development and reconstruction works in regions. These ten measures include:

1. *Low-income housing*: this measure helped poor region of China build low-cost housing to improve living environment of poor people. Also this measure accelerated the transformation of shanty areas and improve farmers living environment.

   This measure helped decreasing the bubble of real estate market, helped more poor people owned their own houses. Improved people's livelihood.

2. *Rural infrastructure:* this measure helped rural improved the biogas and drinking water system, paid more attention on the rural roads construction. Also improved the power grids in rural areas and intensify poverty alleviation power.

35 "China unveils sweeping plan for economy", Barboza, David, November 10, 2008.

36 "China unveils sweeping plan for economy", Barboza, David, November 10, 2008.

37 "China plans 10 major steps to spark growth as fiscal, monetary policies ease", News.xinhuanet.com, November 9, 2008.

3. *Major infrastructure:* The major infrastructure including railways, highways and airports. This measure built more public transportation for goods transports. Especially west lines for coal transports.

In this measure, the government built more health and efficiency public transportation system. The market became more active and effectively expand domestic demand. The increasing airports also helped export industries to sell their products and services in lower cost. Also improve the import needs.

We can find in first two measures, the government pay more attention on people's living situation. After effects of high inflation rate, poor people in China were facing trouble in make a living. In order to decreasing the effects especially in rural areas, the government took up the biggest portion as public infrastructure development. And in the third measures the government improve the public transportation to active the market. Government used 1.5 trillion RMB in this area, nearly 38% of total package.

4. *Health, culture and education:* in this measure the government improved medical system especially in rural areas, improved education system to help more people obtain education chances.

We all know that because of giant population, China was facing a lot of problems in health system and education system. This measure focused on helping those people who need medication help or education. Also improved market in this area.

5. *Ecological environment:* from this measure government paid their attention on the public environment. It built more garbage and urban sewage treatment facilities and focus on water pollution prevention and control. Also built more shelterbelt and natural resource protection.

In this measure we can find that Chinese government was changing concepts, they paid more attention on energy saving industry and decreased pollution. In early years, in order to have a high growth rate of economic, China didn't paid enough attention on polluting enterprises. But from this measure we can see China was changing, the energy saving industry with low pollution could becoming the mainstream of the future.

6. *Science and technology innovation and industrial structure adjustment*: this measure helped restructuring of industries, improved Chinese industries transform from labor-intensive industries to high-tech industries. Also it supported the development of services in China.

As we mentioned in the previous chapter that the industry structure was not healthy enough. The secondary industry took the main part and most of them were labor-intensive or production with low technology and rely on exports. So the global economic crisis could cause great damage to those industries. This measure help coordinate the structure and build more healthy and efficiency economic situation.

7. *Post-earthquake rebuilding:* There were several big earthquake in China such as Sichuan Wenchuan Earthquake happened in 12 May 2008. So the government also use part of this program to rebuilding the affected areas.

8. *Income increases for urban and rural residents:* this measure focused on income of farmers in rural areas. Government increased the purchase price of foods in order to increase income of farmers. Also the government improved the pension system and social insurance system in order to guarantee people's live in poor regions.

9. *Reduce burden on enterprises:* in this measure the government reformed the value-added tax and reduce the burden on enterprises by RMB 120 billion (US$17.6 billion. Government try to help enterprise in troubles and encouraged them to improve their technologies.

After a lot of bankrupt happened in labor-intensive firms and export rely companies, Chinese government coordinate the situation in this way and help rebuild industries to suit the new situation.

10. *Improvement of financial systems in support of economic growth:* this measure canceled the limit of credit in commercial banks. Encouraged bank to expand the scale of reasonable credit.

After this program issued in 2009, a lot of Chinese famous economist fiercely criticism these ten measures. They believed these measures would cause the increase the inflation of China and bring huge debt for local government. In fact, after these measures issued, the money were influx into real estate industries and financial market.

The money only flew in the virtual market and only a small amount of them helped the real economy. Also it brought overcapacity in many industries. As an example, in steel industry, these measures caused a great amount of loss because of overcapacity.

We believe that even though the program eased some crash from global financial crisis, but the negative impacts were also caused new problems. The starting point were good but when the money really operated in the market, a lot of unexpected problems happened.

3.5 U.S. solutions

Since 2007, U.S. did several actions as responses of financial crisis. When the financial crisis became intensified, U.S. government increased awareness and attention to the crisis. Almost all regulators and agencies began to take more comprehensive steps to deal with the crisis.

3.5.1 Responses of Federal Reserve and central banks

As the central bank of U.S, the Federal Reserve used monetary policies as tools in order to solve the crisis. According to words of *Ben Bernanke*, the chairman of Federal Reserve in 2008, he said: "Broadly, the Federal Reserve's response followed two tracks: efforts to support market liquidity and functioning and the pursuit of our macroeconomic objectives through monetary policy."[38]

In order to support market liquidity, the Federal Reserve lowered the target for the funds rate from 5.25% to 2% and lowered discount rate from 5.75% to 2.25%.[39] This act helped gain private investment in different areas, improve vitality of financial market, encourage people invest their money in stock or financial products.

Also Federal Reserve used open market operations to support market liquidity. The Federal Reserve and other member banks purchased some effectively short-term loans collateralized by government securities. On the other hand the Federal Reserve lowered the interest rate for short term loans.

In order to directly lend to banks and non-bank institutions, Federal Reserve created variety of lending facilities based on different types of collateral in different credit quality. For example like Term auction Facility and Term asset-backed securities loan facility. These new lending facilities allowed Federal Reserve helped financial institutions directly.

In March 2009, in order to increase the size of Federal Reserve's balance sheet, the Federal open market committee purchased an additional $750 billion of government-sponsored enterprise mortgage-backed securities.[40]

This act brought total purchase of those securities up to $1.25 trillion that year and increased the purchase of agency debt up to $100 billion. Moreover in 2009 the committee

[38] "Financial Markets, the Economic Outlook, and Monetary Policy", Ben S. Bernanke, January 10, 2008.

[39] "FRB: Press Release-FOMC Statement" September 18, 2007.

[40] "Press Release", March 18, 2009.

decided to purchase $300 billion of longer-term Treasury securities in order to improve conditions in private credit market.

Because the economy situation of U.S. was very weak and inflation was quite low. So when the economy recover from financial crisis, the Federal reserves needed some programs to kept the economy stable, like reduce the money supply, raise interest rates and make sure the recovery didn't involve inflation.

3.5.2 Economic stimulus act of 2008 and 2009

President George Bush signed a $168 billion economic stimulus package into law on 13 February 2008. This act directly mailed income tax rebate checks to taxpayers. But this rebate caused an unexpected jump in food and gas prices. This coincidence led people suspect the stimulus package would have the effect.

In 2009, President Barack Obama signed a $787 billion stimulus package called *American Recovery and Reinvestment Act of 2009*. Worth mentioning that over $75 billion of stimulus package specifically helped struggling homeowners. This plan was mainly helped homeowner's affordability and stability.

In order to maintained stability of economic during the global financial crisis. An act called *Emergency economic stabilization act of 2008* appeared.[41]

This act of 2008 was mainly focused on bank solvency and capital replenishment. Because losses on mortgage-backed securities and other assets, the capital base of financial institutions were dramatically reduced.

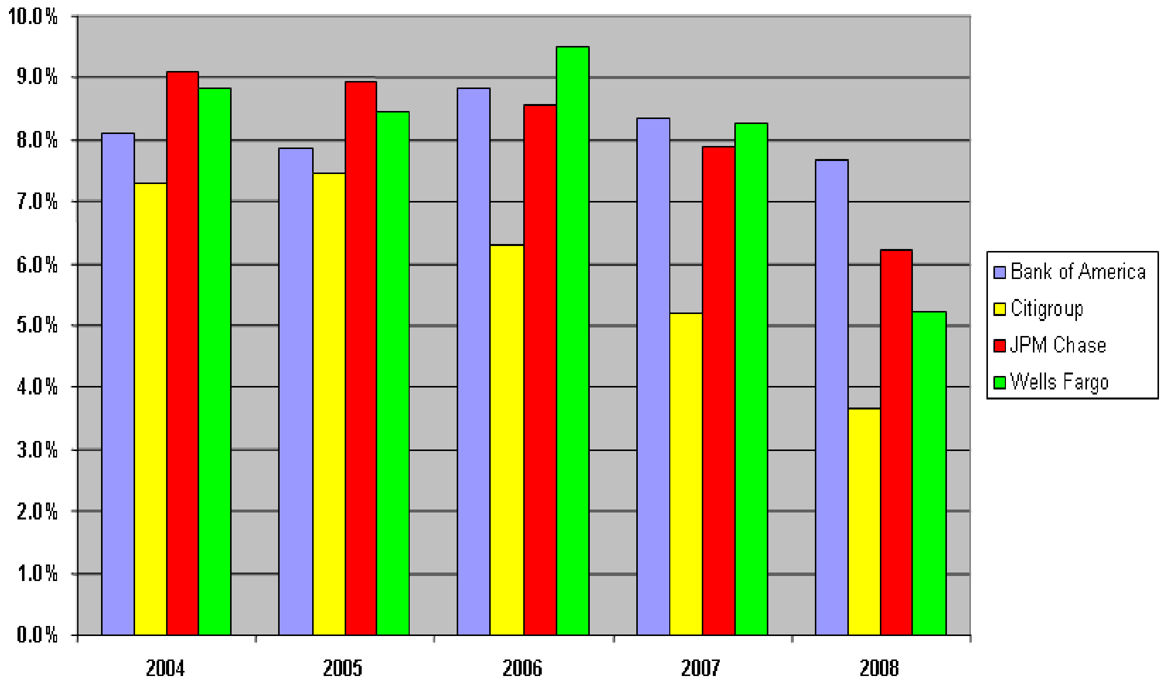
The government of U.S provided funds to banks and some banks also had private sources to acquire additional capital.

For the "*Troubled Assets Relief Program*" This act included $700 billion in funding. This package was used to lend funds to banks in order to exchange for dividend-paying preferred stock.

We can find the common Equity to assets ratio for four largest USA banks in the following figure.

[41] "Paulson abandons plans to buy up America's toxic mortgage assets", Andrew Clark, November 12, 2008.

Figure 3.17 Common equity to assets ratio in largest four USA banks



Source: "Subprime mortgage crisis", Answers

From the figure we can find that the common equity to assets ratio was decreased since 2007. Wells Fargo, the multinational bank, decreased nearly 4% from 2006-2008. We can see under the act "toxic" assets from banks were purchased by private investors and government.

Another way to recapitalizing banks is provide cash by government and private investors in exchange for mortgage-related assets. This can improved the quality of capital in banks while the uncertainty regarding the financial position of banks were reducing.

3.6 Summary of Chapter 3

By checking GDP growth rate of both countries during that period, China owned highest GDP growth rate compare to U.S. That main because before financial crisis Chinese economy was having a rapid development under opportunity of economic transformation.

But the GDP growth rate of U.S. was declining during that period. The decreased private investment, exports and consumptions led GDP growth rate dropped.

Consider about employment situations, the unemployment rate of China was lower than in U.S. That mainly because high development of secondary industry in China absorbed a great amount of labors but those industries were lack of technology and can be easily influenced by the market fluctuation. So the big crash to export industries in China caused the raise of unemployment rate.

In U.S. the situation was even worse. Besides economic crash and decreased of exports, private investment and consumptions, another important reason was a great amount of people were retiring and left their work.

For inflation rate, compare to China, inflation rate of U.S. were lower during the financial crisis. After the crash of economy bubbles, both China and U.S. became deflation in 2009. The main factor of these deflations was the drop of energy prices in August 2009.

As we mentioned U.S. was in trade deficit in a long term. Compare trade balance of these two countries we can conclude that even though the import market of U.S. was seriously damaged by the global financial crisis but the situation of export industries were better than China. In the China the overreliance on exports industries caused China was facing a very bad situation during that period.

By comparing solutions of China and U.S. to the global financial crisis. In China both government and central bank used expansion policies. Even though the act in China eased some crash from the crisis but the negative impacts were also caused a lot of new problems. It mainly because both governments and Central bank of China paid superfluous attentions on infrastructure and also supervise of money in this act were not as efficiency as we expected.

In U.S., they focused on bank solvency and capital replenishment. Act like "Emergency economic stabilization act of 2008" helped maintained stability of economic during the financial crisis. We can say these two countries act two different kinds of solutions and directions were also different. It mainly because the economic situations and structure were different in these two countries. And we can say the solutions in U.S. were much more efficiency than Chinese one.

4 Impact of Financial Crisis on Financial Markets of the USA and China

In this chapter we pay our attention on the financial market of U.S and China. We all know that the global financial crisis did a great damage to the financial market in the world. In this chapter we analysis the situation of financial market in China and U.S and try to find out the relationship and connection between these two financial market.

4.1 Impact on financial market of China

Shang Stock Exchange Composite Index and Hang Seng Index are main stocks indexes to show the situation of stock market in China. Using these two indexes we can analysis the situation of stock market in China during the global financial crisis.

4.1.1 Shang Stock Exchange Composite Index in 2008 global financial crisis

Financial market, especially stock market was a painful experience for people who invested in stock market during global finance crisis. In China SSEC is one of the most important index to show the situation of stock market. In the end of 2007, the SSEC reach 6000, created the highest point in the history, but kept falling down from beginning of 2008 and crumbled to 1820 points at the end of 2008. It crashed more than two third its original market value.

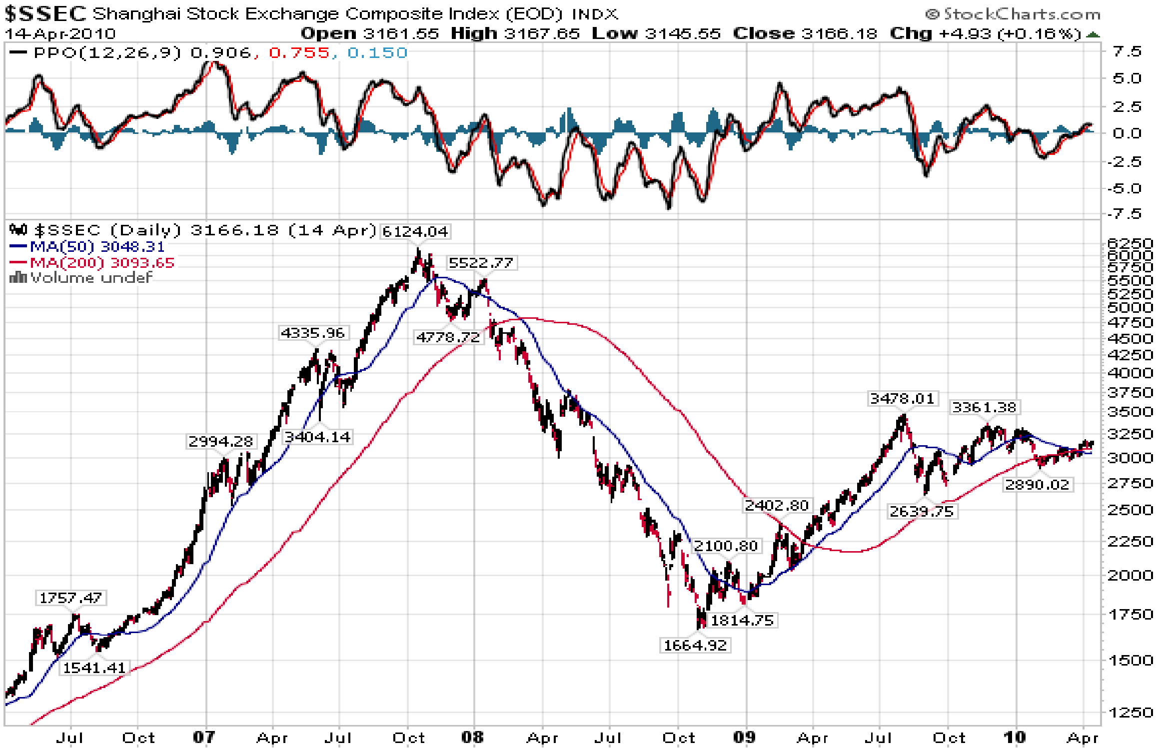
Even though China owned the 9% economy growth rate in 2008 and became the highest in the world but still had a great failed on capital market during that period. We can find the trend of SSEC in the following figure. In order to analysis the impact of global financial crisis on stock market, we can use technical analysis at first to explain the differences between normal situation and situation in 2008.

Started from the first week of May, the SSEC kept decreasing with a quite fast way, there was gap in the second week of June and crashed nearly 1000 point in one month.

When it bottomed out and began to rise, it only had a short bumpy ride during July and kept falling down. In the second week of September, it bottomed out and had a bullish candle stick with long under the shadow line. The third bumpy ride only continued for two weeks and kept falling down.

Prices of SSEC in 2006 to 2010 can be find in the following figure. In the figure the decreasing trend in the financial crisis can be find.

Figure 4.1 SSEC in 2006 to 2010



Source: Stockcharts.com

In the figure we can see there were 3 short bumpy ride in April, July and September of 2008. In April, the support line was in 3000 points, we can find in the second week of April, there was a long bullish candle stick but the under the shadow line was quite long. It means that the stock price was support by the support line but short sellers still very strong.

It was a disaster for Chinese investor who purchase stock in the end of 2007. In general, according to wave principle, the falling trend will stop in the first or second bumpy ride, especially the first bumpy ride was already reached one third of its original market value.

But the global financial crisis damage the stock market and nearly destroyed not only the market but also the confidence of investors.

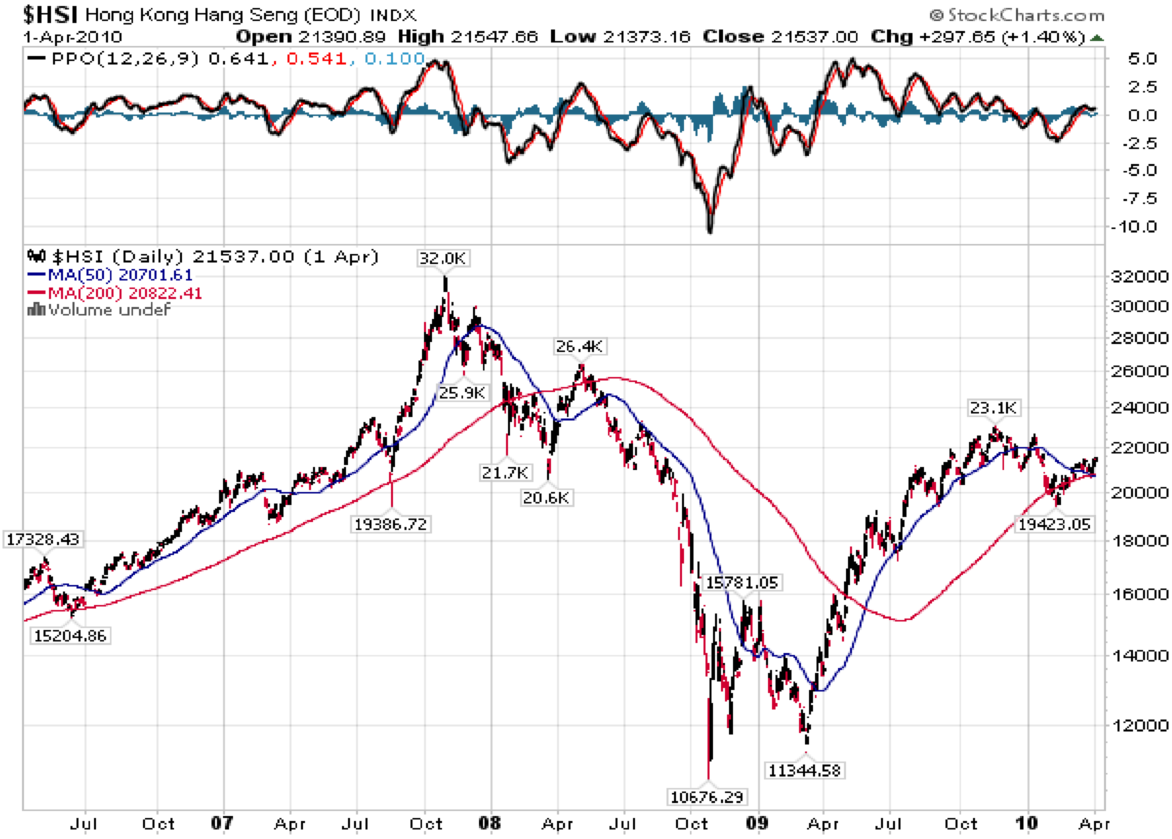
4.1.2 Hang Seng Index in 2008 global financial crisis

The stock index in Hong Kong financial market is Hang Seng index (HSI). The stock market in Hong Kong is a free capital float market and attract many investors from inland of China. So we can say this financial market could be a very important role for Chinese investors and also foreign investors.

As we mentioned, from peak to bottom, there were four waves in SSEC and the index was decreasing for the whole year. Power of support lines and long investors were not strong enough. But in HSI, the situation was totally different. Until September the indexes were still around 20,000 points, kept the same level of the first crashed.

During the financial crisis, in January 2008, the Hang Seng index was facing a big crash. The figure in the following part can show us the trend of Hang Seng index during the global financial crisis.

Figure 4.2 HSI in 2001 to 2012



Source: Stockcharts.com

In Figure 4.2 we suppose to find to main crashes during 2008-2009, the first one was in January 2008. As we mentioned, it was the first crash that the market faced. We can see the HSI reached peak in the end of 2007 at 32,000 points. But at the start of 2008, it crashed to 20,600 points, nearly 33% of its value was losing. Compare to SSEC, the trend was quite different. We can find in this period, the support line try to help the market and it worked for first half year.

But in September, the index faced another bigger crashed because the bankrupt of *Lehman Brothers holdings* in September 2008.[42] In half month the index decreased from 21,000 points to 16,300 points. The Hong Kong Monetary Authority try to help the financial market and inject funds for this crash, this act helped the index even increased for a short time and ended with 4 points fall in that day, this was called as a miracle day.

[42] "Lehman folds with record $613 billion debt". Marketwatch. September 15, 2009.

But under the pressure of global financial crisis, the panic caused the HSI crashed again and at the end of October the index was at a historical low level, nearly 10,000 points.

In order to compare these two stock indexes in Chinese financial market, we make a table for changing in index levels from October 31 2007 to March 9 2009. From the table it's possible for us to have a comprehensive view of whole financial market in China during that period.

Table 4.3 Index level of China

Date	HSI	% Chng.§	SSEC	% Chng.§
October 31, 2007	31532		5954.76	
November 20, 2007	27771	-11.93%	5293.7	-11.10%
January 22, 2008	21757	-21.66%	4559.75	-13.86%
July 04, 2008	21704	-0.24%	2651.72	-41.85%
November 25, 2008	12878	-40.67%	1888.71	-28.77%
March 05, 2009	12211	-5.18%	2221.07	17.60%
October 31, 2007 to March 9, 2009	-19321	-61.27%	-3369	-62.70%

Source: Stockcharts.com

The reason why we chose this dates to show the fact is these dates were all turning point of those index. In October 31, 2007, it was the day that the HSI and SSEC peaked. In January 22, 2008, the HSI decreased over 6,000 points and crashed 21.66%. Also the SSEC was facing big crashes since October 31 in 2007, but much lesser than HSI.

But in July 04 of 2008, even if HSI almost kept the same level compare to previous crashed, but SSEC faced a bigger and stronger crash that nearly 42% of index decreased. Nearly lost 19,000 points.

Another strong crash happened in November 25 of 2008. HSI faced 40.67% lost in index and nearly 9,000 points lost. For SSEC it faced 28.77% lost in index and nearly 800 points were missing.

In March 05 of2009, HSI still decreasing but SSEC had a short recovery compare to previous crashes. As a conclude, from October 31 of 2007 to March 9 of 2009, HSI lost 19321 points and decreased 61.27%, SSEC lost 3733.69 points and decreased 62.7%. These two indexes faced huge crash during the global financial crisis and nearly two-thirds of their value were missing.

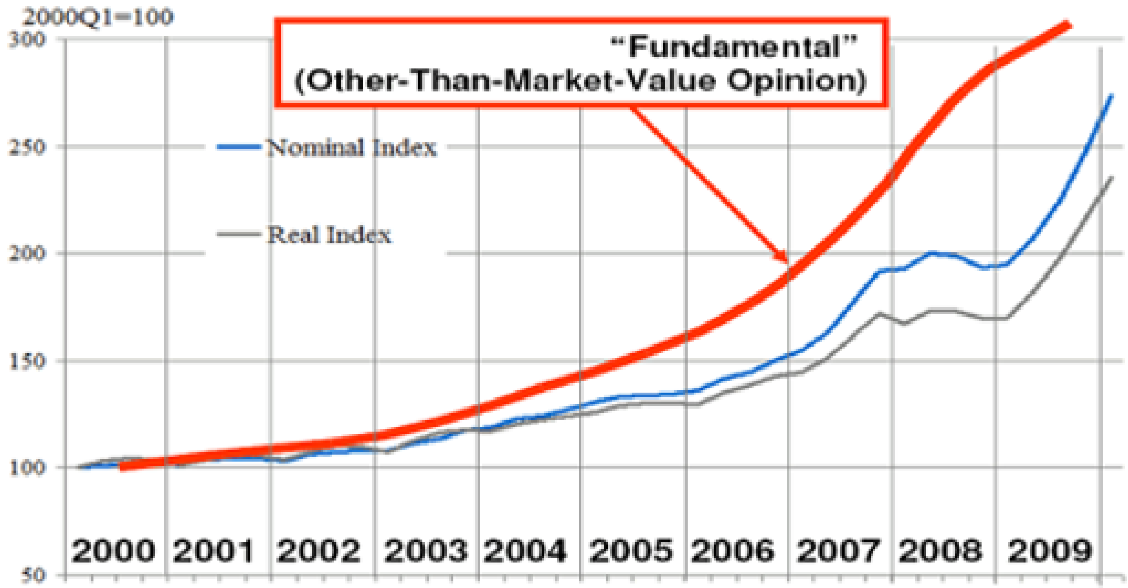
This level of PE only appeared in the highest peak of Japan capital market and NASDAQ. Endings of these two capital market could be a warning to Chinese capital market. We can assume that if the confidence of investors was hit by some kind of crash, the economic bubble would facing an extremely hard situation even crashed. The global financial crisis was the biggest incentive that caused the crashed.

4.1.3 Real estate market in China during the financial crisis

For real estate, Because of high population, the rigid demand is always in a high level. So for investors, real estate was also a good choice. The bubble was increasing fast especially in 2007. We can find the trend of China house prices on the following figure.

If the housing price fall 20%, 30% of mortgage loan could becoming bad debts. It would strike the economic system and also destroyed investor's confidence. But because of the rigidity demand of houses, the price didn't fall like that. In 2009 it increased nearly 50% and bubbles in real estate are also huge nowadays.

Figure 4.4 House Prices of China from 2000-2009



Source: nber.org

In Figure 4.4 we can see the trend was always increasing. Especially in 2007 and 2009. Because of global financial crisis, in 2008 the bubble of real estate was crashed.

Global financial crisis was the most important reason of this fact. But the scale of this crash was so huge that became the biggest crash of stock market in the world. The reason why global financial crisis in US has such a giant impact on Chinese stock market are attributed to the problem not only external but also internal.

First reason is the contact of Chinese stock market and foreign capital was becoming inseparable. In order to proof this opinion, Chinese stock bubble of 2007 was an excellent example. In Feb. 27, Chinese stock market was facing a black Tuesday. Because of unexpectedly sold off, Chinese local stock markets lost nearly 9% of their value. This lost also putting pressure on equity prices in worldwide.

This plunge of Chinese stock market sent ripples thought the whole world and triggered unease in almost all financial markets around the world. As an example, the Dow Jones Industrial average in the US dropped 416 points from 12,632 to 12,216.

For U.S. it was the biggest slide since the terrorist attacks in September 11 2001. For S&P 500 it faced a catastrophic 3.45% slide. Since that investors of China pay more attention on the global financial market, for them it’s possible to get information and signs from foreign stock markets.

All these facts show that how tied that Chinese stock market was contacting to the world financial market. Almost every crashed in the worldwide influenced the Chinese stock market. When the global financial crisis happened, people realized the crash of stock market in US could also happening in the Chinese market.

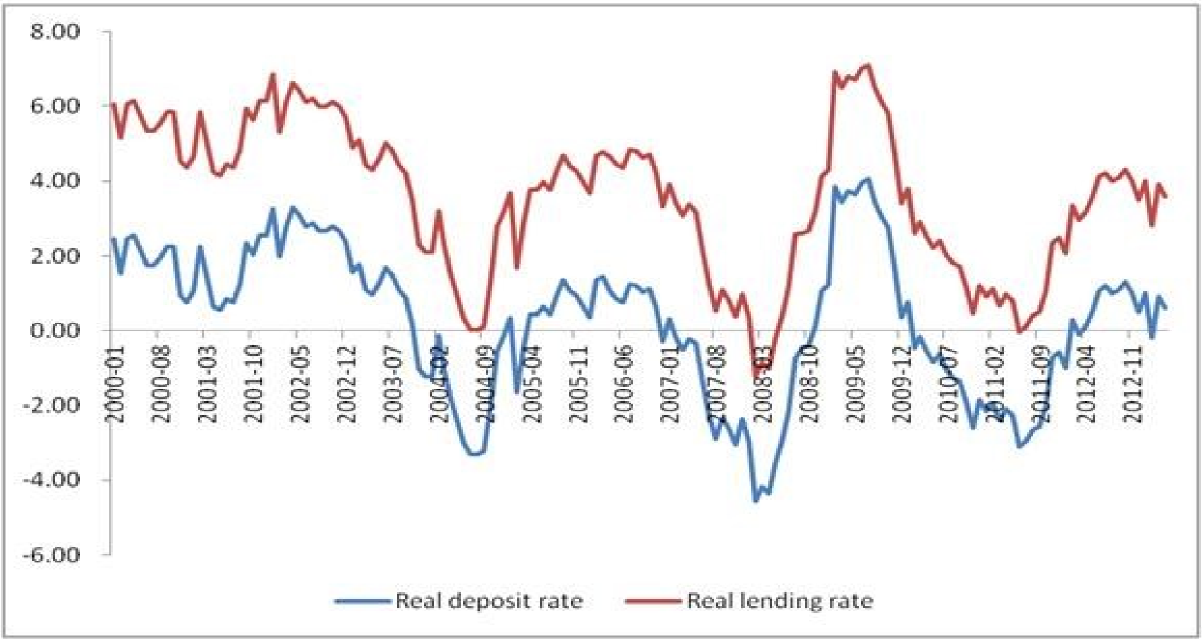
The second reason is the bubble of capital market and real estate. From the Figure 4.1 we can see that at the start of 2008, the SSEC index was in a historical high level. Nearly 6000 points. The bubble in the capital market was quite huge and dynamic price-to-earnings ratio was over 50.

The third reason is that the economic policy of China had some obvious flaws. In 2008, the monetary policies were swing, especially in setting policies about exchange rates and interest rates. In order to maintain stability of macroeconomics especially in export industries and under the pressure of international market, Chinese central bank used regulated floating exchange rate mechanism. T

The central bank hoped that it can remain competitive of export industries. But in fact this policy strengthen the appreciation expectations of RMB. The inflow foreign capital caused a lot of troubles in the capital market exacerbated the inflation.

For interest rate, the distance between interest rate on deposits and interest rate on loans were quite big, compare to other Asia countries, China was 20% to 30% higher than the average level. We can find the distance in the figure below.

Figure 4.5 Real deposit rate and real lending rate of China



Source: China Economics Seminar

From the figure we can find that in 2007 and 2008. The real deposit rate was below 0 and real lending rate was quite high compare to deposit rate. Even though it increased the profit of financial industry, but there was no benefit for the economic situation.

Under the high inflation rate, it became negative real interest rates. People were not possible to maintain the value of assets by saving money, so they moved on to the capital market to find ways to maintain or increase the value of assets. So the bubble of capital market and real estate market was increasing.

The fourth reason is that in Chinese market there were a lot of blindly investors and institutions. Even though China owned a great amount of fund but the management of these funds were not good enough. For example, in the situation of huge bubbles in capital market, managers of funds didn't react right, they still kept stocks even purchased more.

Compare to insurance industry in China, insurance companies didn't purchase any stocks when the index was above 4000 points, but the fund managers still kept their level. The first reason of this anomaly phenomenon was lack of moral. Because funds were benefits from the management fee, the more money they have, the higher profit they can earn. So they don't care their investor's benefits, they just kept purchasing new stocks and attract more investors to invest.

Another reason was they are lack of knowledge, they didn't clearly realized the international market situation and regular pattern. They were also not sensitive to the economic outlook of China.

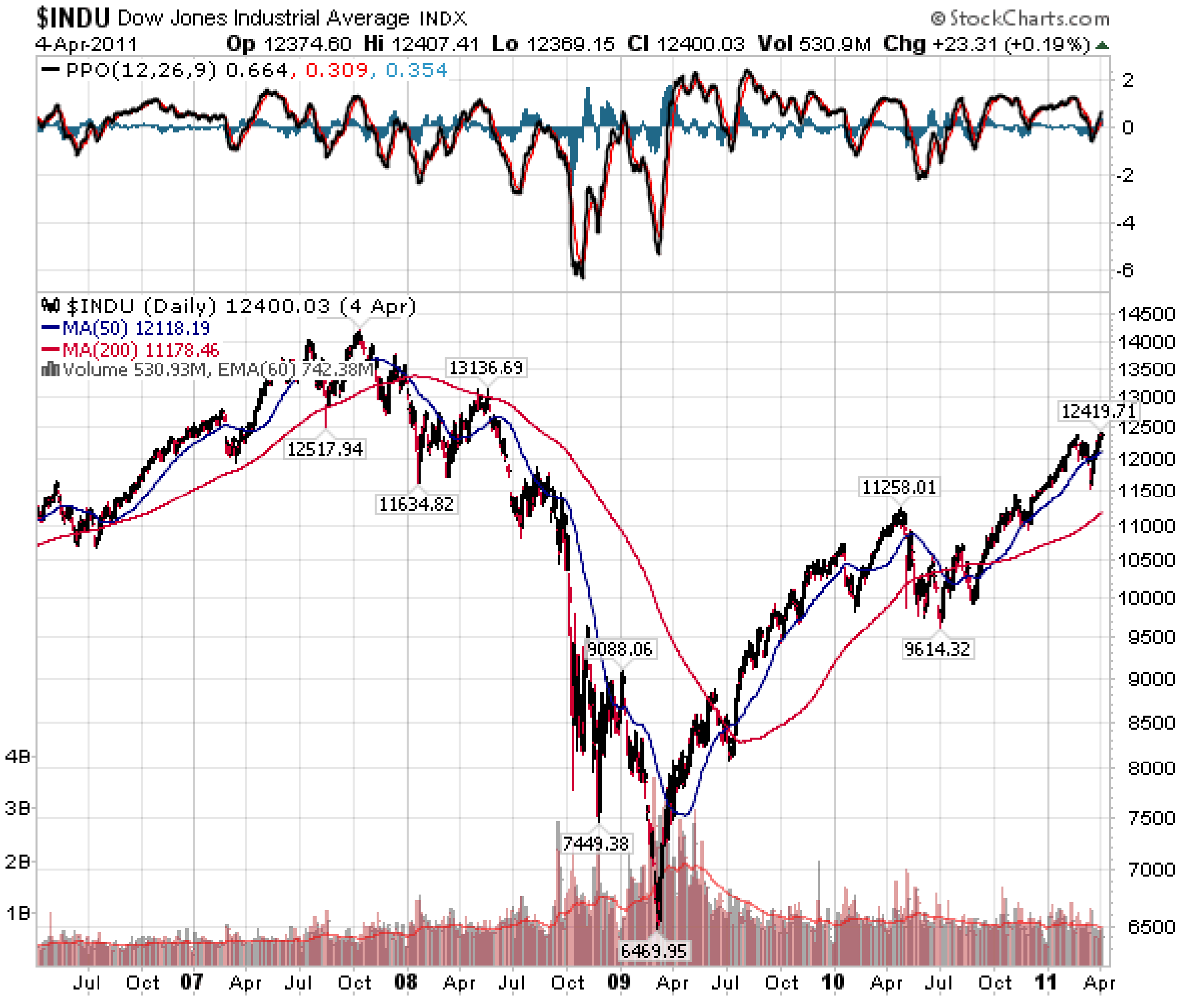
4.2 Impact on financial market of U.S

In this part we analysis the situation of stock market in U.S, during the global financial crisis, as the start country, U.S was facing giant pressure. By analysis the situation of U.S stock market we can compare to Chinese one and figure out the similarities and differences between them

4.2.1 Stock market of U.S during the financial crisis

Similar as Chinese financial market, the stock market of US also faced the great depression. It can be called as United States bear market of 2007-2009. In June 2008, the Dow Jones Industrial Average had fallen nearly 20% from its original level in 11 October, 2007. We can find the trend in the following figure that the stock market kept falling during 2007-2009.

4.6 Dow Jones Industrial Average Index during 2007-2011



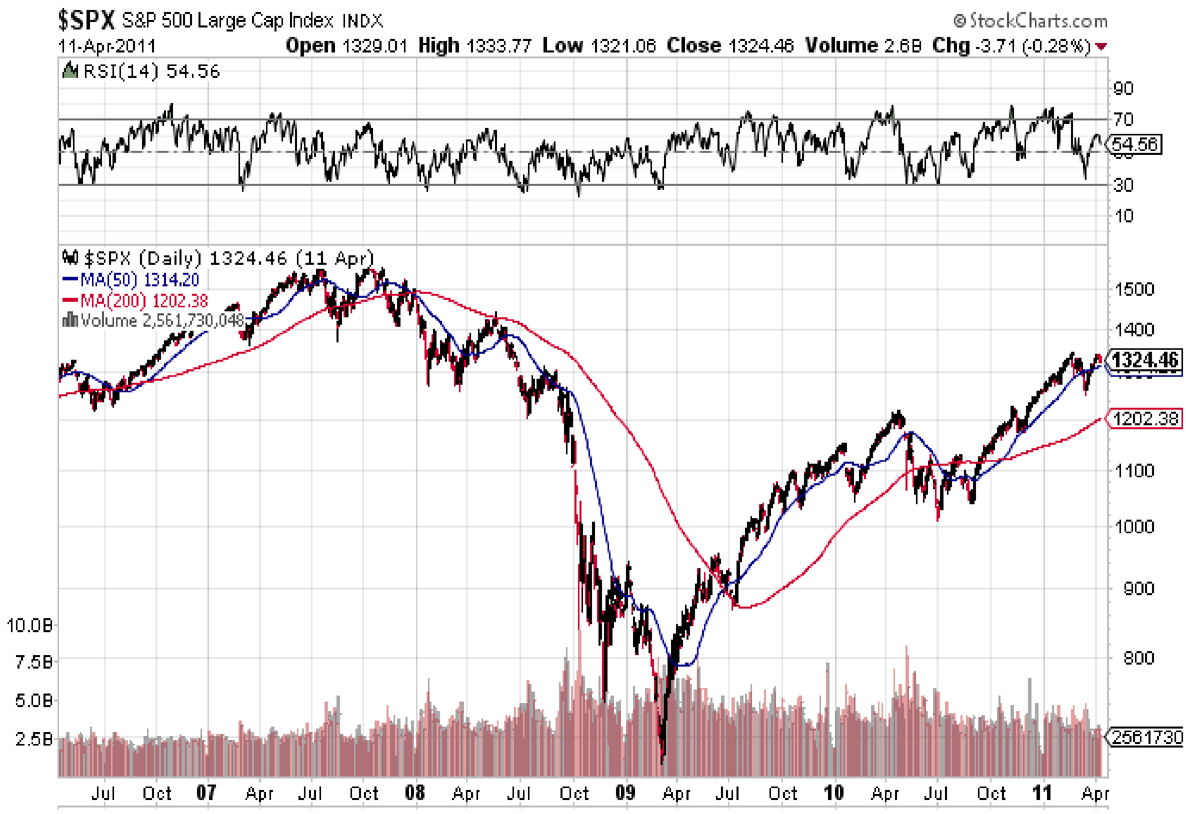
Source: Stockcharts.com

From the figure we can find the wave are nearly the same as Chinese stock market. Especially in October 2008, it was the last falling wave in China and a big decline in U.S. market as well. The figure can prove the financial markets of countries were highly relate in that period. We can conclude that the decline of 20% by 2008 was tandem to other financial markets in worldwide.

The Dow Jones Industrial Average had a drop of 777.68 and close at 10,365.45, this drop broke the record in 29 September 2008. And in 6 March 2009 the Dow Jones Industrial Average bottomed a market low of 6,443.27. In this period, it lost over 54% of its value.

We can also check the S&P 500 large Cap Index during that period. As the second biggest stock index of U.S., compare to Dow Jones Industrial Average Index it contains more companies and risk are more dispersion. By analysis this index we can figure out wider market changes.

4.7 S&P 500 Large Cap Index during 2007-2011



Source: Stockcharts.com

From Figure 4.7 we can figure out that S&P 500 had nearly same trend as Dow Jones Index, it reached bottom at 676.53 points in March 9 of 2009. We can say the financial market especially stock market was great damaged by the global financial crisis. Compare to China the trend was sharper and span of peak and bottom were more. We can say the financial market of U.S. was damaged by global financial crisis more directly.

In order to compare to other index in U.S. financial market, we make a table for changing in index levels from October 9 2007 to March 9 2009. From the table it's possible for us to have a comprehensive view of whole financial market in U.S. during that period.

Table 4.6 Index level of U.S.

Date	Nasdaq	% Chng.§	S&P 500	% Chng.§	Dow Jones	% Chng.§
January 3, 2007	2423.16	—	1416.60	—	12,474.52	—
October 9, 2007	2803.91	+15.71%	1565.15	+10.49%	14,164.53	+13.55%
January 2, 2008	2609.63	-7.18%	1447.16	-7.38%	13,043.96	-7.35%
June 27, 2008	2315,63	-11.27%	1278.38	-11.66%	11,346.51	-13.01%
November 4, 2008	1780.12	-23.13%	1005.75	-21.33%	9,625.28	-15.17%
January 2, 2009	1632.21	-8.31%	899.35	-10.58%	9,034.69	-6.14%
January 20, 2009	1440.86	-11.72%	804.47	-10.55%	7,949.09	-12.02%
March 9, 2009	1268.64	-11.95%	676.53	-15.90%	6507.04	-18.14%
October 9, 2007 to March 9, 2009	-1543	-54.9%	-886	-56.6%	-7657	-53.9%

Source: Stockcharts.com

Similar to previous table, these dates were all turning point of those indexes. In October 9, 2007, it was the day that the Dow Jones Industrial Average and S&P 500 peaked. In January 2, 2008, it was the first day the stock market started in that year, from that date we can see the situation was becoming worse. In June 27, 2008, it was the day the bear market declared. And in March 9, 2009, it was the day the Dow Jones Industrial Average bottomed.

On the other hand the duration of falling trend in U.S. stock market was longer than in Chinese market. For Chinese stock market, the trend continued for 12 months, basic for the whole year of 2008, but for U.S. stock market beside whole year of 2008, the falling trend continued additional 4 months, until April of 2009, the falling trend stopped and began to recover.

As a result, we can find the last line of the table, these three index were facing above lost around 55%. These changes were the cumulative change from peak to bottom.

There were three kinds of opinions regarding the cause. The first camp believed that it should simply blamed the economy. This camp believed that the bear market and recession was predicted and the main cause was the influence from financial crisis. The real reason behind this bear market was the bursting of biggest housing bubble in the history.

When we compare to other financial market in other countries like China, we get nearly the same wave as bear market in U.S. (even worse in China). In our own opinion, global financial crisis was the main reason of crash in U.S. financial market. Especially as the country which directly caused the global financial crisis, it faced the biggest crashed from the recession.

Two other camps had some political leanings. One of them believed the bear market should blamed the George W. Bush administration, another one believed the bear market should blamed the Barack Obama administration. We believe the government policies could be an important role in this bear market. But the core reason of this recession is the global financial crisis.

According to president Obama's word on March 3, 2009 said "What you're now seeing is profit-and-earnings ratios are starting to get to the point where buying stocks is a potentially good deal if you've got a long-term perspective on it" we can conclude that many stocks were in low P/E levels and it was a good chance for investor to invest stocks at the bottom. When the market turn around and real estate and oil price become stable, it could be a great chance for long-term investments.

In bond market, U.S. government bonds did quite good job, especially in long term bonds. Part of long-term bonds enjoyed bull market and high-grade corporate bonds also did well. But as a comparison high-yield bonds performed really bad following the stock behaviors.

4.2.2 Real estate market in U.S during the financial crisis

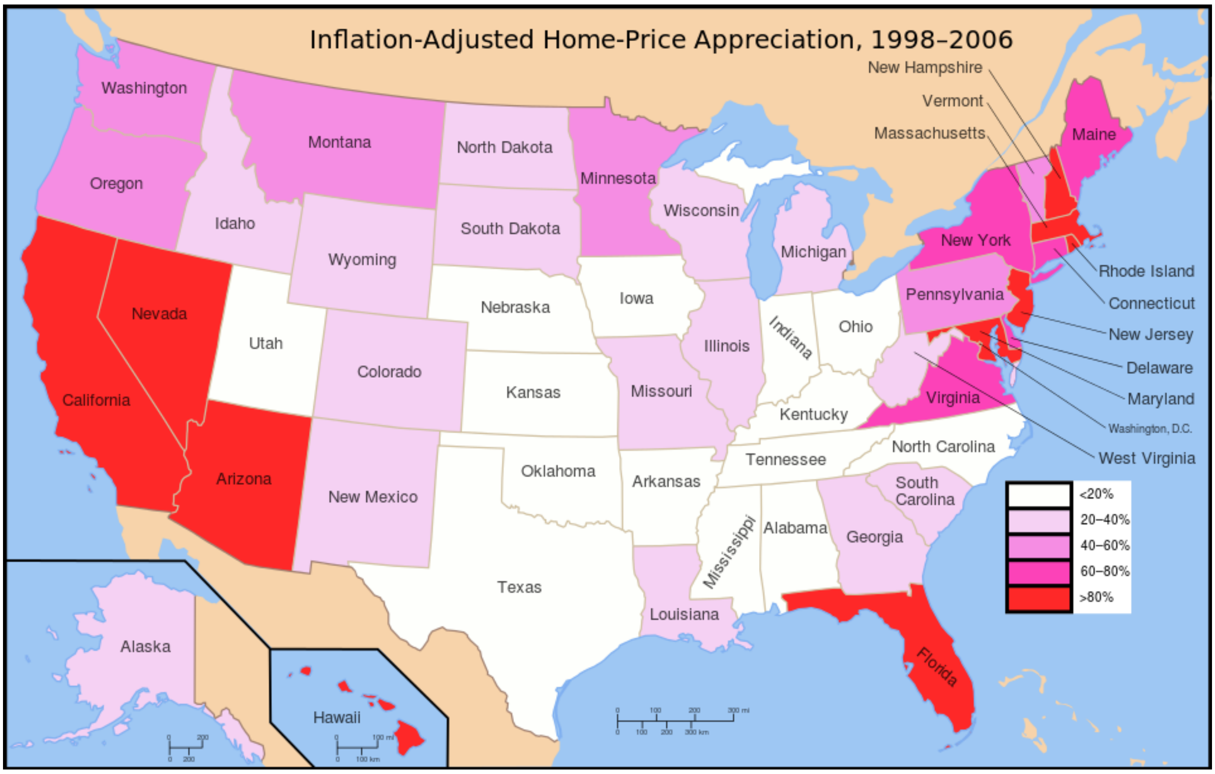
In Chapter 2 we mentioned bubbles in U.S real estate market was one of the main reason of global financial crisis. And we analysis the trend that the bubble was crashed when the global financial crisis was about to start. In this part we analysis the U.S housing bubble in details and find out the main reason of real estate bubbles.

In order to find the extent of inflation in real estate market, we pay our attention on house prices in different regions of U.S, we can say that the house pricing bubble before the global financial crisis was not in a nationwide, only some parts of U.S were facing housing price bubbles.

Even under low interest rates and relaxed lending standards, some regions of U.S were still facing a very tiny amount of price appreciation. These regions had less than 10% of price growth in the bubble term. We can say that situations in U.S can be serious polarization, both on people's living costs and their wealth. In order to find out the differences in U.S local areas, we try to compare those region with high home-price appreciation and those regions that kept in the same level.

In the following figure we can find out the inflation-adjusted home price appreciation during 1998-2006.

Figure 4.7 Inflation-Adjusted Home-Price Appreciation of U.S. during 1998 to 2006



Source: Trulia.com

From Figure 4.7 we can recognize the red regions are regions who were facing serious housing price bubbles that over 80% of appreciation. Most of them are in west coast and east coast, those areas with prosperous economy and high population. But in the middle of U.S, provinces like Kansas, Oklahoma and Texas only had a very few amount of appreciation less than 20%.

There were several side effects after the inflation-adjusted, the first one was the construction of new houses. In 2005 there were nearly 1,283,000 new single-family houses on sale,[43] compared to 609,000 during 1990-1995.[44] Because the price of houses were increasing real estate companies built more house in order to make more profit. As an example, the stock of the largest home builder, D.R.Horton,[45] raised from $3 in 1997 to $42.82 in 2005. The profits came to home builders pocket but people were facing a great amount of debt and unable to pay it back.

The second side effects was the mortgage equity withdrawals, in order to pay for their home, people lend money from banks, and the requirement of mortgage could be one of the main reason of bad debts.

The third side effects was the differences of land prices in different regions. The differences between house prices were based on the land prices. The house price bubble may cause the high living cost and companies in those regions were unable to undertake the pressure of high operating cost.

Reasons of U.S real estate bubble are government policies, crazy home ownership and relax lending standards and risky mortgage.

For government policies, the first reason was the change of housing tax policies. In 1997, the change of *Taxpayer Relief Act*[46] repealed some rules that encouraged people to purchase their fully mortgaged homes as well as invest their money in the financial market.

The second reason was the deregulation took place in banking. *The Depository Institutions Deregulation and Monetary Control Act of 1980* allowed similar banks to merge and able to set their own interest rates. *The Garn-St. Germain Depository Institutions Act of 1962*[47] allowed banks to coordinate its adjustable-rate mortgage. *The Gramm-Leach-Bliley Act of 1999*[48] allowed investment and commercial banks to merge. A great amount of risky products issued because of deregulation. The deregulation offered conditions for housing bubbles and risky credits.

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43 "Housing Bubble", Chase Oliger, Calvin Aichele, February 2, 2012.

44 "The Housing Bubble and its Implications for the Economy", Dirksen Senate Office Building, September 13, 2006.

45 "Web Site Layout Regarding Corporate Governance", D. R. Horton, December 8, 2009.

46 "The American Taxpayer Relief Act of 2012 ('ATRA') – Saved From the 'Fiscal Cliff'", Kreutzer, Matthew J, January 9, 2013.

47 "Depository Institutions Deregulation and Monetary Control Act", Jimmy Carter, March 31, 1980.

48 "Chairman Cox Announces End of Consolidated Supervised Entities Program". Chairman Cox, September 26, 2008.

The third reason was the requirement from government to established affordable housing loans. In order to establish affordable housing project, to meet these commitments, Fannie and Freddie relaxed the lending standards in order to attract more people to get their affordable housing loans.

The fourth reason was the historical low interest rate in U.S. As we mentioned, the interest rate was only 1% in that period. The low interest rate motived easy credit for more loans. The low interest rate offered opportunities for housing boom and excessive risk taking.

For crazy home ownership, when the housing tax policies changed, people believed invest in real estate was a great chance compare to other financial products. A great amount of hot money influx into real estate market and over investing make the bubble became bigger and bigger.

For the risky mortgage products, under low interest rates and high home prices, also the great profit from reselling homes, we can say the risk was extremely low for lenders because the risk loans were able to pay back with flipping homes. The expansion of subprime lending directly brought a lot of credit risk and bad debts for banks.

4.3 Analysis of relationships between U.S. and Chinese financial market

As we mentioned, the internationalization of financial market in China brought high correlations with international financial market. In this part we analysis the relevance between U.S and Chinese financial markets during the global financial crisis.

In this part we use correlation matrix to analysis the relationship between four markets. SSEC; HSI; Dow Jones index and S&P index. As we mentioned that SSEC and HSI were the most important index to show the situation of financial market in China. So by analysis the correlation between Chinese stock market and U.S. stock market can find out the differences and relationships.

The basic index points were all different in these four indexes, so we used change rate to show its situations. We use two different kinds of duration for this analysis, daily and weekly. Data from daily analysis can be more sensitive, these data truthfully record the change of indexes and more directly.

By analysis those data from weekly changes, as we know the impact from one foreign market to another always delayed, weekly data can be suitable for realistic situation and result can be more accurate.

4.3.1 Correlation analysis in daily data

We choose data from 1 February 2007 to 31 December 2008 and after excluding closed dates we get 486 data for different trading days. In order to show the result more directly, we use correlation matrix to show correlation coefficient of these four indexes.

Table 4.7 Correlation matrix for daily data in Feb 1st 2007 to Dec 31st 2008

Correlation	Dow Jones	S&P	HSI	SSEC
Dow Jones	1			
S&P	0.982457927	1		
HSI	0.109508843	0.136739	1	
SSEC	-0.0354086	-0.02939	-0.03458	1

From Table 4.7, we can figure out that Dow Jones and S&P were high related during that period. But for HSI the correlation coefficient for Dow Jones and S&P were around 0.1 and for SSEC there was even negative related.

In order to figure out the reason, we also divided these period to two parts, 2007 and 2008. The correlation matrix of 2007 is as follows.

Table 4.8 Correlation matrix for daily data in Feb 1st 2007 to Dec 31st 2007

Correlation	Dow Jones	S&P	HSI	SSEC
Dow Jones	1			
S&P	0.966268	1		
HSI	-0.01267	-0.01412	1	
SSEC	-0.06682	-0.04214	-0.03184	1

Correlation in 2007 of these four indexes were different compared to previous result. Both SSEC and HSI were negative related to stock indexes in U.S. And for SSEC correlations coefficient were even smaller than pervious result.

Then we move on to 2008, the correlation matrix of 2008 is as follows.

Table 4.9 Correlation matrix for daily data in Jan 2nd 2008 to Dec 31st 2008

Correlation	Dow Jones	S&P	HSI	SSEC
Dow Jones	1			
S&P	0.984691	1		
HSI	0.128612	0.16241	1	
SSEC	-0.03583	-0.03361	-0.04911	1

Correlation in 2008 of these four indexes were more similar to result of whole period. By checking the change of correlation coefficient between these four indexes we believed that HSI received stronger impacts from U.S. stock market and SSEC was in the opposite situation.

4.3.2 Correlation analysis in weekly data

As we mentioned, the impact from U.S. stock market to China may delayed and weekly data can be more accurate and suitable to realistic situations.

Similar to analysis in daily data, the correlation matrix of whole period is as follows.

Table 4.10 Correlation matrix for weekly data in Feb 1st 2007 to Dec 31st 2008

Correlation	Dow Jones	S&P	HSI	SSEC
Dow Jones	1			
S&P	0.979301	1		
HSI	0.576752	0.629798	1	
SSEC	0.017144	0.012521	0.125134	1

From weekly data, the main difference between correlation matrixes of daily data and weekly data is the correlation coefficient of HSI and U.S. indexes.

The weekly data has much more higher correlation coefficient compare to daily data. Especially for HSI, the correlation coefficient of HSI and U.S. indexes became nearly 5 times than daily data.

The weekly data can be checked in 2007 and 2008.

Table 4.11 Correlation matrix for weekly data in Feb 1st 2007 to Dec 31st 2007

Correlation	Dow Jones	S&P	HSI	SSEC
Dow Jones	1			
S&P	0.965568179	1		
HSI	0.296048552	0.32023947	1	
SSEC	-0.17831066	-0.17974373	-0.008906147	1

Similar to previous part, in 2007 the correlation coefficient between Chinese stock market and U.S. stock market was quite low. Even for SSEC, in 2007 it had -0.17 correlation coefficient with U.S. stock market.

The correlation matrix can be checked in 2008 and find the development.

Table 4.12 Correlation matrix for weekly data in Jan 2nd 2008 to Dec 31st 2008

Correlation	Dow Jones	S&P	HSI	SSEC
Dow Jones	1			
S&P	0.98199100	1		
HS index	0.65544321	0.711519637	1	
SSEC	0.07163041	0.06148879	0.16580923	1

In 2008, HSI owned quite high correlation coefficient with U.S. stock market and we can find similar trend already mentioned. And in all these table there are a common fact that correlation coefficient of HSI and SSEC were very small during that period of time.

4.3.3 Impacts from U.S financial market to Chinese financial market

After analysis daily and weekly data of these four stock indexes, the relationship between Chinese and U.S. stock markets can be figured out. Also the relationship and development of Chinese internal market.

In 2007, these four indexes all reached top in the beginning of 2007. From the peak to bottom, all these indexes had the same trend. But those stock waves were staggered, by analysis the data in 2007, we can figure out that the SSEC was quite close, in the daily and weekly analysis we can see SSEC had negative correlation coefficient with U.S. stock market.

In Chapter 2, SSEC started at 1990, compare to Dow Jones index started from 1896, SSEC was not quite mature and owned quite short history. In 2007 the correlation coefficient of SSEC and U.S. indexes were negative.

China had better economic situation in the beginning of financial crisis. Investors of U.S. might recognized the decreased trend of internal stock indexes. In order to avoid risk, they could moving their capital to invest in Chinese market in order to own a better situation. But consider about those barriers for foreign investors in SSEC, the floating capital was not much efficient.

Even if the daily data didn't show the fact, but the weekly data showed the opposite trend compare to U.S. stock market. It mainly because the delayed capital transaction and U.S. investors needed time to research and find ideal opportunities to enter.

On the other hand, investors in SSEC were not much sensitive to foreign stock market. Even though the U.S. stock indexes was decreasing quite fast, they still owned hope and kept purchasing. It mainly because the immature of market and information were not open enough. Also some investors were misleading by optimistic attitude of financial crisis happened in U.S.

In 2008, the weekly correlation coefficient of SSEC and U.S. indexes became positive, even though the coefficient was quite small. We can conclude that as one of the most important stock index in China, SSEC was facing difficulties, but the trend was quite stable. Unlike stock indexes in U.S., they faced big crashes in the second half year of 2008. So the correlation coefficient were quite small.

It mainly because from the help of government, SSEC owned a decreased but stable trend during the financial crisis.

Move on to the HSI, in the chapter two we introduced that this stock index is in Hong Kong and the market was more energetic also mature. On the other hand, it can be influenced by foreign capital and impact of financial crisis was more serious to it.

In 2007, correlation coefficient from daily data analysis was quite low. We can say investors of Hong Kong were not that sensitive to the change of other financial market, but when we pay attention to the weekly data in 2007, the correlation coefficient nearly became 0.3. We can figure out that the foreign capital were progressively decreased and many foreign investors were facing losses.

In 2008, from both weekly and daily data we can see the correlation coefficient was increasing. Especially weekly correlation coefficient, became around 0.7 in 2008.

As a port city, Hong Kong related on international trading and economic was also more open compare to mainland financial market. In other words, it could be easily influenced by foreign market and more sensitive to economic change in worldwide.

Also we can say Chinese government didn't offer help to Hong Kong for political reason. So in this way, stock market of Hong Kong faced crash from U.S. indexes market more directly.

4.4 Comparison of Impact of Financial Crisis on Financial Markets of U.S and China

When we compare both Chinese stock market and U.S. stock market during the global financial crisis, from peak to bottom we can figure out that the decrease of Chinese stock market were larger than decrease in U.S. stock markets. In this period HSI decreased 19,321 points and 61.27% of its original value before crisis; SSEC decreased 3733.69 points and 62.7% of its original value.

In U.S. Dow Jones Industrial Average Index decreased 7657 points and 53.9 of its original value; S&P 500 Index decreased 886 points and 56.6% of its original value and NASDAQ decreased 1543 points and 54.9% of its original value.

Even if the declined in U.S. stock market was less than in Chinese market, the declined trend of U.S. stock market was concentrated in the end of 2008 and beginning of 2009. The trend was quite sharp during that short period. The declined trend in Chinese market was relatively gentle, for the whole year of 2008, Chinese stock indexes kept decreasing but compare to declined trend in U.S. declined trend in Chinese stock markets were a little bit more stable.

On the other hand, even though the drop in U.S. stock market was lower than in Chinese stock market, but duration of decline trend in U.S. stock market was longer than in Chinese one. Chinese stock market began recovery in the beginning of 2009, but U.S. stock market faced bear market until the middle of 2009.

For real estate market in both countries, they all had price bubbles before the financial crisis, but in China the housing price were rising in nationwide, even during the financial crisis the price of house kept in the same level. But for U.S. the housing price were concentrated in specific areas like east coast and west coast. And the price bubble was crashed during the financial crisis, prices of real estates faced big drops.

According to analysis of relationship between U.S. and Chinese financial market during this crisis, we can say these two market were related but in different stock market of China the impacts were different. Stock market in Hong Kong faced more pressure from U.S. stock market and stock market in mainland was protected by government and quite close and immature. Even if the stock market of mainland was becoming more mature during that period but there were still problems in building a fair and open market.

Financial markets were facing big trouble during the financial crisis in both countries, in U.S. the negative impact were more directly and stronger. China recovered faster than U.S. but because of some policies failures, the recovery of Chinese economic was not as efficiency as people expected.

4.5 Summary of Chapter 4

In financial market, we compare four different indexes during the financial crisis, and they nearly had the same trend. But the duration and margin was not exactly the same. Stock indexes in China had shorter duration but the margin were bigger than stock indexes in U.S. Chinese stock market were more stable and recovered early than U.S.

In U.S. stock market the declined trend were concentrated in specific period. Even though the declined value were smaller than Chinese indexes but the length of time in bear market was longer than China. By analysis the relationship between stock market of these two countries, these two market were highly related and the trend were quite similar.

For real estate market in these two countries, they all had price bubbles before crisis but the followed-up changes were different. Prices of houses in China was keeping in the same level in after years but the house prices in U.S. faced big drops.

5 Conclusion

In this thesis we analyze the similarities and differences of impacts of global financial crisis on U.S. and China. As the biggest financial crisis in recent years, global financial crisis had great scale and influence to almost all countries in the world.

The main reason of this financial crisis was the lost in subprime loan and crash of economic bubbles. This financial crisis was spread in a great speed and both China and U.S. faced a giant amount of economic loss.

China owned better economic indicators than U.S. but faced heavier crash on export industries and U.S international trading situation was better than China.

U.S. solutions was more efficiency than China, both of them used expansion policies to help the economic. But China focused on building infrastructure and the consequent was not as efficient as U.S. policies.

In financial market, both Chinese and U.S. stock market were facing big crash, from 2007 to 2008, basic indexes of these two countries were facing crashes. But stock market in mainland of China faced less pressure than stock market in Hong Kong from financial crisis because of its closed policies and barriers for foreign capital.

By analyzed the impact of global financial crisis in 2007-2008 on U.S. and China, we can figure out the similarities and difference of these two countries. It's significant for not only government and central banks but also ourselves to reflect and find out the way to survives from this invisible disaster. By checking those losses and gains in this financial crisis it's possible to get valuable experiences and avoid repeat same mistakes in the future.

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List of Abbreviations

GDP	Gross domestic product
FED	Federal Reserve System
MBS	Mortgage-backed security
CNY	Chinese Yuan
CBO	Congressional Budget Office
SSEC	Shang Stock Exchange Composite Index
HSI	Hang Seng Index
S&P	Standard & Poor's
INDU, DJIA	Dow Jones Industrial Average

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Annex 1 China's Historical GDP for 2000 – 2014

China's Historical GDP for 2000 - 2014

year	**GDP**		
	GDP *in billions*		real growth (%)
	CNY	USD	
P2014	63,646.27	10,361.12	7.4
2013	58,801.88	9,494.59	7.7
2012	53,412.30	8,461.35	7.7
2011	48,412.35	7,495.56	9.5
2010	40,890.30	6,040.37	10.6
2009	34,562.92	5,059.72	9.2
2008	31,675.17	4,560.79	9.6
2007	26,801.94	3,524.72	14.2
2006	21,765.66	2,730.33	12.7
2005	18,589.58	2,269.32	11.3
2004	16,071.44	1,941.75	10.1
2003	13,656.46	1,649.93	10
2002	12,100.20	1,461.91	9.1
2001	11,027.04	1,332.25	8.3
2000	9,977.63	1,205.26	8.4

Annex 2 U.S. Historical GDP for 2000 – 2014

U.S. Historical GDP for 2000 - 2014

year	**GDP**		
	GDP *in billions*		real growth (%)
	CNY	USD	
P2014	72,527.84	10,361.12	9.13%
2013	66,462.13	9,494.59	12.21%
2012	59,229.45	8,461.35	-43.43%
2011	104,708.10	14,958.30	3.75%
2010	100,925.30	14,417.90	-2.05%
2009	103,042.10	14,720.30	1.66%
2008	101,362.10	14,480.30	4.49%
2007	97,005.30	13,857.90	5.82%
2006	91,667.80	13,095.40	6.67%
2005	85,939.00	12,277.00	6.64%
2004	80,585.40	11,512.20	4.85%
2003	76,861.40	10,980.20	3.34%
2002	74,377.10	10,625.30	3.26%
2001	72,027.90	10,289.70	6.46%
2000	67,659.90	9,665.70	1.80%

Annex 3 Price of SSEC for 2000-2014

Price of SSEC for 2000-2014			
Year	Open price of year	Highest price of year	Lowest price of year
2014	2,109.39	3,234.68	1,993.48
2013	2,276.99	2,385.42	2,073.10
2012	2,169.39	2,460.69	1,959.77
2011	2,808.08	3,057.33	2,166.21
2010	3,243.76	3,282.18	2,363.95
2009	1,880.72	3,471.44	1,863.37
2008	5,272.81	5,497.90	1,706.70
2007	2,715.72	6,092.06	2,641.33
2006	1,161.06	2,675.47	1,161.06
2005	1,266.50	1,318.27	1,011.50
2004	1,497.04	1,777.52	1,266.50
2003	1,357.65	1,631.47	1,316.56
2002	1,645.97	1,732.76	1,357.65
2001	2,073.48	2,242.42	1,594.05
2000	2,049.03	2,076.89	2,049.03

Annex 4 Price of HSI for 2000-2014

Price of HSI for 2000-2014			
Year	Open price of year	Highest price of year	Lowest price of year
2014	23,452.76	25,362.98	21,680.33
2013	22,860.25	24,111.55	19,426.36
2012	18,770.64	22,718.83	18,056.40
2011	23,135.64	24,468.64	16,170.35
2010	21,860.04	24,988.57	18,971.52
2009	14,448.22	23,099.57	11,344.58
2008	27,632.20	27,853.60	10,676.29
2007	20,004.84	31,958.41	19,350.50
2006	14,843.97	20,049.03	15,204.86
2005	14,216.04	15,493.00	13,320.53
2004	12,664.99	14,339.06	10,917.65
2003	9,333.64	12,740.50	8,331.87
2002	11,368.13	12,021.72	8,772.48
2001	15,089.85	16,274.67	8,894.36
2000	14,864.04	15,154.92	14,785.01

Annex 5 Price of Dow Jones Industrial Average Index for 2000-2014

Price of DJIA for 2000-2014			
Year	Open price of year	Highest price of year	Lowest price of year
2014	16,572.17	18,103.45	16,015.32
2013	13,104.30	16,588.25	13,104.30
2012	12,221.19	13,661.87	12,221.19
2011	11,577.43	12,876.00	10,404.49
2010	10,430.69	11,625.00	9,614.32
2009	8,772.25	10,580.33	7,033.62
2008	13,261.82	13,279.54	7,449.38
2007	12,459.54	14,198.10	11,939.61
2006	10,718.30	12,529.88	10,661.15
2005	10,783.75	10,984.46	10,000.46
2004	10,452.74	10,868.07	9,708.40
2003	8,342.38	10,462.44	7,416.64
2002	10,021.71	10,673.10	7,197.49
2001	10,790.92	11,350.05	8,062.34
2000	11,024.92	11,425.45	9,654.64

Annex 6 Price of S&P 500 for 2000-2014

Price of S&P 500 for 2000-2014			
Year	Open price of year	Highest price of year	Lowest price of year
2014	1,845.86	2,093.55	1,737.92
2013	1,426.19	1,849.44	1,426.19
2012	1,258.86	1,474.51	1,258.86
2011	1,257.62	1,370.58	1,074.77
2010	1,116.56	1,262.60	1,010.91
2009	902.99	1,130.38	832.98
2008	1,467.97	1,471.77	741.02
2007	1,418.03	1,576.09	1,363.98
2006	1,248.29	1,431.81	1,219.29
2005	1,211.92	1,275.80	1,136.15
2004	1,111.92	1,217.33	1,060.72
2003	879.82	1,112.56	788.9
2002	1,148.08	1,176.97	768.63
2001	1,320.28	1,383.37	944.75
2000	1,469.25	1,530.09	1,254.07